Infrastructure Canada

Ottawa, Canada
K1P 0B6

BRIEFING NOTE TO THE MINISTER

PROGRESS REPORT ON THE PAN-CANADIAN FRAMEWORK PREPARED ON BEHALF OF MINISTERS RESPONSIBLE FOR INFRASTRUCTURE

(For Signature)

ISSUE

- Relevant federal-provincial-territorial (FPT) ministerial tables must develop annual progress reports that outline their efforts to implement the Pan-Canadian Framework on Clean Growth and Climate Change.

- The purpose of this note is to secure your approval of the Progress Report (Annex A) prepared on behalf of the FPT Ministers responsible for infrastructure. The Report will then be shared with First Ministers on December 9, 2017, as a companion to an overarching public Synthesis Report detailing overall progress.

- The Progress Report will not be made public.

BACKGROUND

- FPT ministerial tables involved in the implementation of the Framework will be required to submit annual Progress Reports on an ongoing basis. These reports are meant to inform the development of an annual Synthesis Report (Annex B), which is prepared by Environment and Climate Change (ECCC) on behalf of a Coordinating Committee of Experts comprised of FPT Intergovernmental Affairs Ministers.

- The Ministers responsible for infrastructure have relatively few concrete details to share in this inaugural report, as the Investing in Canada Infrastructure Program – which includes two climate-focused sub-streams under the Green Infrastructure Stream – remains in the early stages of roll-out. Instead, the federal input outlines the suite of funding tools in development and highlights co-benefits achieved through existing programs.

- Consolidated results across all tables will be made public through the Synthesis Report, which will be presented to First Ministers on December 9, 2017. This date has been chosen to coincide with the Framework's first anniversary.

- Progress reports developed by individual FPT ministerial tables will be shared with First Ministers as part of the Synthesis package, but these individual reports will not be made public.

- Individual tables may elect to release their reports, should they feel it appropriate to do so. To facilitate the rapid development of this report, Infrastructure Canada (INFC) has not asked its provincial and territorial interlocutors to vet the Progress Report for public release.

ATIA-14(a)

ATIA-14(b)

CONSIDERATIONS

- INFC approached provinces and territories on a number of occasions to solicit input to the Progress Report. The Progress Report was highlighted at the Deputy Minister-level FPT Meeting held in Ottawa in September, and a draft document was circulated for review and comment in October.

[redacted]

- None of the responding provinces and territories expressed significant reservations about the document or its content, and provincial/territorial input was inserted with minimal alteration.

- INFC has also worked with ECCC to refine the content of its Synthesis Report and ensure that results detailed in the Progress Report are suitably referenced.

- Provinces and territories are expected to focus their attention on the content of the Synthesis Report, as it will be made public. ECCC has circulated a draft of the Synthesis Report to provinces and territories for their review and approval.

RECOMMENDATION

- It is recommended that you approve the attached Progress Report for distribution to First Ministers as part of a package accompanying the Synthesis Report.

NEXT STEP

- Should you concur, the Progress Report will be shared with ECCC. ECCC will coordinate distribution to First Ministers on December 9, 2017.

Kelly Gillis
Deputy Minister
Infrastructure and Communities

Date

___ I approve. ___ I do not approve. ___ For discussion.

A. Sohi

Amarjeet Sohi, P.C., M.P.
Minister of Infrastructure and Communities

DEC 0 7 2017
Date

Attachments:

Annex A – Federal, Provincial, and Territorial Ministers Responsible for Infrastructure: Progress Report on Implementation of the Pan-Canadian Framework on Clean Growth and Climate Change (For Approval)

Annex B – Pan-Canadian Framework on Clean Growth and Climate Change: First Annual Synthesis Report on the Status of Implementation (Draft – For Information)

Annex A

Federal, Provincial and Territorial Ministers Responsible for Infrastructure

Progress Report on Implementation of the Pan-Canadian Framework on Clean Growth and Climate Change

Fall 2017

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Introduction

In December 2016, First Ministers[1] endorsed the Pan-Canadian Framework on Clean Growth and Climate Change, an ambitious and achievable plan to grow the economy, reduce greenhouse gas (GHG) emissions and build resilience to a changing climate. The framework was developed through a collaborative approach, as outlined in the Vancouver Declaration, and recognized the need for fair and flexible approaches to support the diversity of provincial and territorial economies. The framework builds on the leadership and actions of provinces and territories to reduce GHG emissions and address climate change. New actions taken as part of the framework will contribute to meeting or exceeding Canada's 2030 climate change target of a 30% reduction in GHG emissions below 2005 levels.

The framework is built on four main pillars: pricing carbon pollution; complementary measures to further reduce emissions across the economy; measures to adapt to the impacts of climate change and build resilience; and actions to accelerate innovation, support clean technology, and create jobs. This report will focus on the progress that federal, provincial, and territorial governments have made in 2017 in implementing measures in the framework that fall under the purview of Ministers responsible for infrastructure. The report also looks ahead toward future actions in 2018-2019 and beyond.

Achieving Collaborative Results

Implementing the framework involves numerous ministries across federal, provincial and territorial governments.

This collaborative reporting process mirrors the multilateral nature of ongoing efforts to both address the Canadian infrastructure gap and respond to climate change. To this end, governments continue to make historic investments and create concerted partnerships that will accord individual jurisdictions the flexibility needed to apply federal funding to their most pressing priorities.

Reporting Structures and Scope of this Report

In this context, the Ministers responsible for infrastructure are working together to consolidate federal, provincial, and territorial results linking infrastructure development to the climate change objectives of the framework, with specific focus on public transit. While this report is not intended for direct public consumption, the report will be forwarded to First Ministers for information, and the results reported here will inform the final public report to First Ministers developed by the Coordinating Committee of Experts.

[1] Manitoba and Saskatchewan have not signed onto the Framework.

This report seeks to highlight a number of results achieved over the course of 2017 in areas overseen by the Ministers responsible for infrastructure. However, there are additional programs, projects and initiatives related to infrastructure that will be captured through the reports of other Ministerial tables. These include:

- Adaptation and resilience measures –reporting led by the Canadian Council of Ministers of the Environment (CCME);
- Measures to increase access to clean energy transportation – reporting led by federal, provincial and territorial (FPT) Ministers of Transportation;
- Measures to increase capacity to generate and manage clean energy – reporting led by FPT Ministers of Energy; and
- Measures to increase energy efficiency in the built environment – reporting led by FPT Ministers of Energy.

This document reports on achievements specific to public infrastructure that will support the framework's objectives, and which have not otherwise been captured by the reporting led by the other tables referenced above. Of particular note, given the specialized role of the CCME which leads overall reporting on adaptation measures, adaptation-focused progress and results emerging from the Investing in Canada Infrastructure Program (ICIP), Disaster Mitigation and Adaptation Fund, and the Climate Resilient Buildings and Core Public Infrastructure Project will be identified through their report.

In the pages that follow, an overall analysis of progress will provide an overview of various infrastructure programs which produce benefits in provinces, territories, municipalities and Indigenous communities that reinforce the framework's overall objectives. The report subsequently identifies a series of federal, provincial and territorial measures undertaken to advance outcomes that are directly aligned with specific Complementary Climate Actions identified in the framework, and outlines the table's specific plans linked to reporting and oversight. The results achieved in 2017 stem from a range of policies and programs implemented at all levels of government which have been implemented over recent years.

Overall Analysis of Progress[2]

Supporting the Pan-Canadian Framework through Early Investments under the Investing in Canada Plan

Budget 2016 announced federal infrastructure investments that would support the rehabilitation, repair and modernization of existing infrastructure. The initial stages of the Investing in Canada Plan committed $11.9 billion in new funding for public transit infrastructure, green infrastructure and social infrastructure. Infrastructure Canada is managing the delivery of funding for the Public Transit Infrastructure Fund and the Clean Water and Wastewater Fund through bilateral agreements with provincial and territorial governments. The first agreement was signed less than three months after Budget 2016, and by August 2017 over 3,100 projects had been approved for federal funding. Going forward, federal, provincial and territorial governments will work in collaboration to address infrastructure gaps and support transformative projects that contribute to Pan-Canadian Framework's objectives through historic investments and concerted partnerships.

PROGRAMS AND INVESTMENTS SUPPORTING GHG MITIGATION

The Public Transit Infrastructure Fund

The $3.4 billion Public Transit Infrastructure Fund was created in 2016 to make federal investments that would repair, rehabilitate and expand existing public transit systems across Canada, helping improve commutes, reduce air pollution, strengthen communities and grow Canada's economy. This program's results to date are described later in this document, and linked to their corresponding Complementary Climate Actions under the Pan-Canadian Framework for Clean Growth and Climate Change.

The Green Municipal Fund

Budget 2016 provided a $125 million top-up to the Green Municipal Fund, managed by the Federation of Canadian Municipalities (FCM). The Green Municipal Fund was established to generate a positive impact on the health and quality of life of Canadians by reducing greenhouse gas emissions, improving local air, water and soil quality, and promoting renewable energy by supporting environmental studies and projects within the municipal sector. Eligible projects may fall into one or more of the following areas: energy, water, waste, sustainable transportation, brownfields, or integrated community projects.

The Green Municipal Fund's 2016-17 Annual Report notes that since its inception in 2000, it has committed to provide over $759 million to support 199 environmentally-focused capital

[2] While this report speaks to results achieved during calendar year 2017, many of the federal programs described below were first announced via Budget 2016, and some began generating results late in that same year. In its capacity as the first annual report on results under the Pan-Canadian Framework on Clean Growth and Climate Change, this document includes those early results. Further, where programs report their results according to the fiscal year ending March 31 this report reflects the results available from the most recently completed fiscal year.

projects in communities across Canada, including 9 commitments in 2016-2017. The initiatives approved in 2016-2017 will produce an estimated annual GHG emission reduction of 91,806 tonnes, while the fund's overall portfolio of funded initiatives have collectively reduced GHG emissions by 628,051 tonnes per year.

The Municipalities for Climate Innovation Program
Budget 2016 allocated $75 million to the FCM to establish the Municipalities for Climate Innovation Program, which provides funding, training, and resources to help municipalities adapt to the impacts of climate change and reduce greenhouse gas emissions.

The types of initiatives the 5-year program supports include:

- Reducing GHG emissions from waste collection trucks through the optimization of routes and the reduction of the frequency of garbage and recycling pick-up;
- Assessing vulnerability to flooding of buildings in a neighbourhood;
- Planning that encourages residents to use less polluting forms of transportation such as cycling, walking and transit; and
- Changing municipal policy, such as introducing no-idling policies.

The ultimate outcome of the program is to increase the number of municipalities in Canada that are low-carbon and benefit from climate resilient infrastructure. More municipalities will have established GHG reduction objectives and implement action plans, policies, and investment decisions to achieve initial or deep GHG emissions reduction targets. Future infrastructure investments will also be designed to account for expected changes in climate.

PROGRAMS AND INVESTMENTS SUPPORTING ADAPTATION AND RESLIENCE TO CLIMATE CHANGE

The Clean Water and Wastewater Fund
In addition to improving the capacity and environmental performance of Canada's water, wastewater, and stormwater systems, the $2 billion Clean Water and Wastewater Fund, managed by Infrastructure Canada, supported investments in 239 flood mitigation projects. These reduce the vulnerability of communities and public infrastructure to the negative impacts of flooding events. Roughly 18% of these projects helped address flood risk and reduce the potential for wastewater treatment systems being overwhelmed by separating wastewater and stormwater collection pipes. These projects are delivering benefits to residents by better protecting their families, property and livelihoods.

The Municipal Asset Management Program
Budget 2016 announced that $50 million would be allocated to the FCM for the Municipal Asset Management Program, a five-year program designed to help Canadian municipalities make informed infrastructure investment decisions—including through the consideration of climate effects, such as how local weather patterns will change over the long term.

The program launched in February 2017. Municipalities can access grants to fund activities such as asset management needs or risk assessments; asset management plans, policies and strategies; data collection and reporting; asset management training and organizational development; and knowledge transfer, development and sharing. The ultimate result the program seeks to achieve is that municipal infrastructure investment decisions are made with a view to better long-term asset management.

Supporting the Pan-Canadian Framework through the Next Step of the Investing in Canada Plan

Guided by the Investing in Canada Plan's principles, the Government of Canada has established a comprehensive program known as the Investing in Canada Infrastructure Program (ICIP) to make significant investments in order to realize identified objectives and outcomes. These investments are organized into four funding streams: public transit; green infrastructure; community, culture, and recreational infrastructure; and rural and northern infrastructure. The green infrastructure envelope, which breaks down across three sub-streams, seeks to mitigate the factors driving climate change, promote resilience, adaptation and disaster mitigation efforts, and improve overall environmental quality.

UPCOMING PROGRAMS SUPPORTING GHG MITIGATION

The Public Transit Stream

From Canada's small towns to its largest urban centres, efficient public transit is vital to the functioning of communities. Public transit helps to reduce traffic on roads so they can accommodate other economic activity.

The Investing in Canada Plan devotes $23.5 billion to public transit, $20.1 billion of which will be delivered through Integrated Bilateral Agreements with the provinces and territories under the ICIP. A significant portion of this funding is allocated to provinces and territories using a formula based on ridership (70%) and population (30%) to balance demands on existing systems funding system expansions to accommodate population growth. Within each jurisdiction, funding is further allocated to existing public transit systems based on their respective ridership, with some flexibility possible to address regional requirements.

By improving the capacity, quality, safety and accessibility of public transit infrastructure throughout Canada, investments will lead to reduced urban congestion, and improved access to jobs and growth for all Canadians. They will support the transition to a low-carbon economy and provide positive environmental effects by reducing air pollution and GHG emissions. The investments will also enhance mobility options and strengthen opportunities for all Canadians to contribute to their communities.

The Green Infrastructure Stream

The Government has made it a priority to address climate change and move Canada to a prosperous, clean growth, resilient, low-carbon economy. Infrastructure funding is a critical tool for advancing climate change mitigation and adaptation outcomes.

The overarching Investing in Canada Plan devotes $26.9 billion to the green infrastructure investment stream. Starting in 2018, the ICIP will provide $9.2 billion for green infrastructure to support GHG mitigation projects in the provinces and territories; infrastructure that will help communities prepare for the challenges of climate change; and other green infrastructure that supports a healthy environment, such as water and wastewater infrastructure. Further, at least 45% of each province's green stream allocation—equivalent to a combined total of at least $3.8 billion—must support assets intended to mitigate GHG emissions.

Specific outcomes promoting emissions mitigation under the ICIP's Green Infrastructure-Climate Change Mitigation sub-stream include:

- Increased generation of clean energy;
- Increased capacity to manage more renewable energy;
- Increased energy efficiency of buildings; and
- Increased access to clean energy transportation.

Through alignment with these outcomes, investments made under this sub-stream will reduce GHG emissions to offset the effects of climate change and help meet Canada's commitments under the Paris Agreement.

The Canada Infrastructure Bank

The Canada Infrastructure Bank will work with provincial, territorial, municipal, Indigenous, and private sector and institutional investment partners to transform the way infrastructure is planned, funded and delivered across the country, attracting private sector capital for infrastructure projects with revenue-generating potential. Investments will further the high-level policy objectives of the Investing in Canada Plan, including climate change objectives.

Specific Actions to Implement Framework Objectives Undertaken in 2017

The following section matches federal, provincial and territorial activities undertaken in 2017 with explicitly targeted Complementary Actions highlighted through Pan-Canadian Framework on Clean Growth and Climate Change.

As noted previously, this section does not speak to infrastructure-focused adaptation, resilience and disaster mitigation programs and projects, as this reporting has been captured by the report developed by the Canadian Council of Ministers of the Environment.

BUILT ENVIRONMENT

Ministers responsible for supporting:

- **3.2.1 Making new buildings more energy efficient; and**
- **3.2.2 Retrofitting existing buildings**

Federal Results

The Green Infrastructure-Climate Change Mitigation stream of the Investing in Canada Infrastructure Program (ICIP) will support efforts to increase energy efficiency in new and existing public infrastructure. Infrastructure Canada is currently working with its provincial and territorial interlocutors to develop Integrated Bilateral Agreements for the ICIP. Individual energy efficiency projects must be prioritized by the responsible provincial or territorial government in order to receive support through this program.

Provincial and Territorial Results

Alberta

The Government of Alberta has instituted a number of initiatives and programs, including:

Rooftop Solar Panels

- Alberta has installed and continues to install rooftop solar panels on its provincial buildings. Since October 2016, the Ministry of Infrastructure has committed to installing 854.7kW of solar photovoltaics on government owned buildings (Lethbridge Provincial Building, High River Community Resource Centre, J.G. O' Donoghue Building, Pincher Creek Building, and the Learning Resources Centre).
- The government has also approved a solar program for schools across the province.

Building Retrofits

- Alberta is retrofitting buildings to increase density as well as increase the efficiency of mechanical and electrical equipment.
- Where feasible, solar panels are also being installed as part of the retrofit project to reduce demand on the electricity grid.

Energy Efficiency

- Energy Efficiency Alberta has rebate programs available for all Albertans for energy efficient products such as lighting, heating controls, appliances, and even solar panels.
- Sustainable Technologies for Capital Projects.
- The Ministry of Infrastructure is conducting a feasibility study to assess and prioritize enhanced sustainable technologies for capital projects that achieve the highest

greenhouse gas emissions aversions or reductions and provide economic, environmental, and social value.

- The feasibility study will ensure that sustainable technologies are applied to new-build and retrofit projects in a way that makes the most sense and ensures best value by accounting for the following factors: geo-climatic impacts, location factors, life-cycle costs, site factors, and building types on the potential greenhouse gases averted or reduced.

Newfoundland and Labrador

The Provincial Government continued to implement its Build Better Buildings policy in 2017, building on its successes to date. The policy requires that new buildings and large renovations receiving any level of provincial capital funding be built sustainably, which includes:

- Exceeding the 1997 Model National Energy Code for Buildings by 25 percent; and
- Striving for a Silver rating under the Leadership in Energy and Environmental Design (LEED) sustainable building certification program.

Since the policy came into effect in September 2010, a total of 24 buildings have achieved some level of LEED certification within the province, including nine buildings in 2017 (i.e. one LEED Gold, five LEED Silver, and three LEED Certified).

Among those successes is the new Metrobus Transit Terminal in the City of St. John's, which became a LEED Certified building in August 2016. This state-of-the-art public transit facility includes energy-efficient geothermal heating, high recycled content building materials, and accommodations for the fleet's on-board bike racks. The new facility will also help Metrobus manage its operations more efficiently, and accommodate future expansion of the public transit system in St. John's and the surrounding area.

In June 2017, the Provincial Government received a Government Leadership Award from the Canada Green Building Council (CaGBC) for its initiatives within the public sector to advance change and improve performance in sustainable building practices.

Northwest Territories

The Government of Northwest Territories (GNWT) completed Capital Asset Retrofit Fund projects in many Northwest Territories (NWT) communities, including Fort McPherson, Inuvik, Norman Wells, Inuvik, Hay River, Fort Smith, Wrigley and Yellowknife.

The GNWT invests annually in its Capital Asset Retrofit Fund (CARF) Program to target energy efficiency investments in NWT public buildings. The Program strives to:

- Reduce energy consumption and operational costs of government facilities;
- Improve overall comfort for building users;
- Reduce greenhouse gas emissions associated with the operation of our public buildings;

- Increase the usable life of government assets; and
- Identify new energy technologies appropriate for our northern environment.

Through the CARF Program, buildings undergo a rigorous energy audit that includes benchmarking a facility to see how its energy usage compares to other similar buildings. Retrofit measures include heating, ventilation and air conditioning (HVAC) upgrades, solar power installations, building envelope upgrades, LED lighting upgrades, and heat recovery and control optimization projects.

TRANSPORTATION

Ministers responsible for:

- **3.3.3 Shifting from higher- to lower-emitting modes and investing in infrastructure**

Public Transit

Federal Results
The Public Transit Infrastructure Fund is focused on making immediate investments of $3.4 billion over three years to upgrade and improve public transit systems across Canada. Results achieved to date include: [3]

- Improved Transit Capacity and Environmental Performance
  Through this fund, over 900 older buses are being replaced with newer, more reliable, and more efficient vehicles. This is in addition to the 775 new buses that have been ordered to expand current transportation networks, offering up over 42,000 additional seats to commuters. Over one-third of those new buses will also be better for the environment than traditional diesel buses, using compressed natural gas, bio-diesel, electric or hybrid technologies to dramatically reduce greenhouse gas emissions. These investments will help increase bus frequency, expand the areas serviced, and ease traffic congestion for all commuters, while better protecting the environment

- Increased System Accessibility
  Investments under the Public Transit Infrastructure Fund will help Canadians access employment, social networks and other opportunities, by increasing the accessibility of our public transit networks. Almost 500 new para-transit buses will offer transportation solutions to those unable to use traditional bus services, while investments will make 81 existing transit facilities more accessible for everyone.

[3] Note that in certain cases the public transit results reported by provincial and territorial governments may have been supported through this federal funding envelope.

- Expanded and Better Integrated Active Transportation Systems
  The Government of Canada approved over 200 projects that will better integrate alternative and active transportation options into existing public transit systems. As a result, new bicycle storage areas are being built at bus stations, bus racks are being added to buses and transit hubs are being built to intersect with active transportation trails. In all, over 120 kilometres of new trails will support these new multi-modal commuter networks thanks to this funding.

- State of Good Repair
  A key objective of the Public Transit Infrastructure Fund was to bring existing systems into a state of good repair. Over 50% of approved projects went towards meeting that objective with over 553 major repair and rehabilitation projects to transit vehicles, rails and stations are now well underway.

As part of the next step of the Investing in Canada Plan, support for public transit initiatives is now being made available through two separate streams of the ICIP. Public transit projects that expand access to clean energy transportation are eligible for support under the Green Infrastructure-Climate Change Mitigation sub-stream, while the broader Public Transit stream, will support projects that improve the capacity, quality, and safety of public transit infrastructure, and increase access to public transit systems. Infrastructure Canada is now working with its provincial and territorial interlocutors to develop Integrated Bilateral Agreements for the ICIP. Individual projects must be prioritized by the responsible provincial or territorial government in order to receive support through this program.

Provincial and Territorial Results

Alberta

The Government of Alberta is supporting public transit through a number of programs and initiatives, including:

The Green Transit Incentives Program (GreenTRIP)

- In July 2016, GreenTRIP criteria was expanded to allow municipalities to apply for funding for a broader range of transit projects. The $2 billion grant program (originally launched in 2008) provides funding to municipalities and eligible transit commissions for capital transit projects that support new or expanded public transit systems. The Ministry of Transportation administered a final call for the Green Transit Incentives Program (GreenTRIP) submissions in December 2016.

LRT Funding

- In July 2017, Alberta announced $1.53 billion in funding over eight years to build the new Green Line LRT in Calgary. Work is continuing on the Green Line LRT. Stage 1 is projected to begin construction in 2020, and is anticipated to open in 2026.

- In September 2017, Alberta announced an additional $176 million grant over three years to support the Southeast Valley Line LRT in Edmonton. This brings Alberta's total contribution for the project to $600 million in funding. The Southeast Valley Line is schedule for completion in 2020.

Saskatchewan

Municipalities in Saskatchewan have made investments in the areas of:

Making new buildings more energy efficient

- Construction of a new maintenance facility in Regina in order to eliminate approximately 70 tonnes/year of CO^2 produced by shuttling around buses

Improved transit capacity and environmental performance

- Procure 61 conventional buses for Regina, Saskatoon and Moose Jaw to increase ridership and modal share, while reducing average CO^2 emissions per kilometre

Increased system accessibility

- Upgrade bus shelters and accessibility in Regina and Saskatoon to improve service and remove barriers for those with disabilities
- To improve accessibility of services, procure:
  - 10 paratransit buses for Regina
  - 12 access buses for Saskatoon
  - 3 low floor buses for Prince Albert

Expanded and better integrated transportation systems to increase modal share

- Construct an express route and purchase 3 buses for a new Arcola Express Bus Route in Regina
- Undertake functional planning and preliminary design work for a future Bus Rapid Transit system in Saskatoon

Québec

The Ministry of Transport for Sustainable Mobility and Transport Electrification manages government assistance programs to improve urban and regional public transport services and support transport authorities in their efforts to increase the supply of public transit services as well as encourage greater use of public transit to, inter alia, reduce GHG emissions associated with passenger transportation.

These programs support public transit infrastructure in a number of ways and represent significant financial efforts directly related to the fight against climate change:

- $562 million in 2017-2018 for the government's public transit assistance program (PAGTCP);
- $128 million in 2017-2018 for the Québec Local Infrastructure Corporation's Transit Capital Assistance Program (SOFIL);
- $1.7 billion over the 2016-2018 period for the Public Transit Infrastructure Fund's financial assistance program ($924 million in funding from the federal government);
- $140 million in 2017-2018 for the Transit Development Assistance Program.

Recent improvements have been made to these various programs and will increase public transit service offerings across Québec by 10%. Notably:

- The PAGTCP has seen its period extended, and the rate of financial assistance increased from 75% to 100% for some projects;
- The categories of assets eligible for the PAGTCP and SOFIL's assistance programs have been expanded to include the capital expenditures required to operate a paratransit system and used service vehicles.

Newfoundland and Labrador

The Provincial Government has supported the City of St. John's in implementing several projects under the Public Transit Infrastructure Fund that will help shift from higher to lower-emitting modes of transportation and invest in infrastructure. These projects include:

- Accessibility improvements to install wheelchair-accessible shelters and sidewalks to provide additional public transit options to the Metrobus service area.
- Three new shorter, more fuel-efficient buses to replace several older models on less-busy routes
- Upgrades to an On Demand Scheduling system and a new transit priority system to improve route timing and make public transit a more convenient for users.

Northwest Territories

Federal funding for public transit improvements under Phase 1 of the Investing in Canada Plan were utilized to complete upgrades to transit infrastructure in the City of Yellowknife, including the replacement of bus shelters and increased accessibility

Active Transportation

Federal Results

Canadians are looking for more options to get to and from work, and other destinations like schools and stores. A growing method of commuting is active transportation – walking or cycling instead of using a vehicle. The Investing in Canada Plan encourages investments in active transportation infrastructure, such as dedicated bike paths and lanes.
Investments in commuter-based active transportation will be eligible through both the new ICIP public transit funding stream, as well as the green infrastructure funding stream. These

investments will support the transition to a low-carbon society and bring positive environmental impacts through reduced air pollution and GHG emissions. They will also enhance mobility options and strengthen communities.

Provincial and Territorial Results

Alberta
The Government Alberta has implemented a registrar exemption to allow people riding e-bikes to wear bicycle helmets or motorcycle helmets (previously, motorcycle helmets were required).

Québec
In this sector, the Ministry of Transport for Sustainable Mobility and Transport Electrification continues its financial assistance program for cycling and pedestrian infrastructure to develop relevant infrastructure assets within municipal urbanization perimeters.

Newfoundland and Labrador
Newfoundland and Labrador's Provincial Government has supported the City of Corner Brook in implementing two active transportation projects under the Public Transit Infrastructure Fund. These projects include:

- Developing a new walking trail from the downtown area to the Three Bear Mountain trail, to better integrate the City's active transportation and public transit networks; and
- Extending the City's existing bikeway network.

Northwest Territories
Due to the small size of most NWT communities, active transportation within municipalities, like cycling and walking, is already quite common. Long distances between communities make these activities less common along major highways. The GNWT has made an effort to accommodate alternate road users on access roads and highways near communities by widening shoulders, installing crosswalks, or pedestrian pathways.

The GNWT has also been involved in a number of initiatives and projects in regards to active transportation in recent years. These initiatives include:

- Installation of "Share the Road" signs on Highways #3, #4 and the Yellowknife Access Road in and near Yellowknife;

- The NWT Road Safety Plan was prepared in 2015 to guide road safety programs over the next four years with a goal of reducing fatalities and injuries on highways, winter roads, community roads, ice crossings and trails. The Plan addresses the safety of vulnerable road users, including cyclists and pedestrians;

- The GNWT's Drive Alive Program, which ran from 2008 to 2014, included public awareness campaigns targeting the safety of pedestrians and cyclists. Bike helmets were distributed to school-aged children living in small communities between 2010 and 2012;

- Two metre wide paved shoulders were incorporated in the reconstruction of the first 7.5 kilometres of Highway #4 to accommodate cyclists, which opened in 2014;

- In November 2016, the City of Yellowknife constructed a multi-use trail parallel to the Yellowknife Access Road to improve the safety of active transportation users. The trail was constructed within the highway right-of-way. Work to construct a pedestrian pathway that will connect to and extend the trail is underway and installation of a crosswalk in the same location to facilitate safe access to the multi-use trail is expected to be completed by November 2017; and

- The GNWT designed and installed a zebra crosswalk with rectangular rapid flashing lighting on overhead pedestals for the Town of Hay River to provide safe access for pedestrians to the new Hay River Health Centre.

Ministers responsible for supporting:

3.3.4 Using cleaner fuels

Federal Results

Through the Green Infrastructure-Climate Change Mitigation sub-stream of the ICIP, Infrastructure Canada will support public infrastructure projects that promote increased public access to clean energy transportation, including through the use of alternative fuels. Infrastructure Canada is now working with its provincial and territorial interlocutors to develop Integrated Bilateral Agreements for the ICIP. Individual energy efficiency projects must be prioritized by the responsible provincial or territorial government in order to receive support through this program.

Provincial and Territorial Results

Newfoundland and Labrador

Through its Build Better Buildings policy, the Provincial Government continues to advance sustainable building designs and strategies across the province. As a result of these efforts to strive for LEED certification, a number of electric vehicle charging stations have been installed at provincially-funded buildings, including the Paradise Double Ice Complex, the Marystown Recreation Centre and the Mount Pearl Summit Centre.

Northwest Territories

The GNWT is developing a Climate Change Strategic Framework. Priorities and actions for

inclusion in the Framework are currently being identified, including building climate resilience in the NWT, with an expected release of the Framework and subsequent action plan for 2018. The framework will rest on three pillars. Among these pillars is "Economy, Innovation and Emissions" that involves using best practices and innovation to grow and diversify the NWT economy, while reducing reliance on imported fossil fuels and the resulting production of greenhouse gas emissions.

In addition, the GNWT is currently developing a long-term energy strategy which will set a target for reducing diesel for electricity production in remote communities. Accomplishments achieved include the commissioning of a variable speed generator and solar array in Aklavik, completed feasibility and design work for utility scale wind in Inuvik, and wind monitoring for smaller scale turbines in two communities. As part of this Strategy, the GNWT is engaging with industrial emitters to understand the potential for greenhouse gas emission reductions and efficiency improvements. To that end, it is expected the long-term energy strategy would include support for industry to reduce greenhouse gas emissions.

The GNWT has committed over $2.7 million in 2017 to the Arctic Energy Alliance to provide energy efficiency programs and services to residents, businesses and communities.

Reporting and Oversight

Federal Results

CPPI Survey

The Investing in Canada Plan includes a commitment to improving data on the state and performance of core public assets. In July, 2017, INFC and Statistics Canada launched Canada's Core Public Infrastructure survey. The goal of this national survey is to improve the knowledge and understanding of Canada's core public infrastructure assets across the country (i.e. roads; bridges and tunnels; culture, recreation and sports facilities; social and affordable housing; public transit; solid waste systems; and potable water, wastewater and storm water systems). This will be Canada's first national survey regarding core public infrastructure representing over 95% of the total target population. Through a number of targeted questions within this survey, the Government of Canada hopes to establish a more consolidated view of the measures being implemented to address the impacts of climate change as they pertain to Canada's public infrastructure.

Introducing a Climate Lens for Shared Infrastructure Investments

The Investing in Canada Plan emphasizes that federal infrastructure spending should reduce or minimize GHG emissions and should build climate change resilience. Infrastructure Canada is developing a Climate Lens which will ensure project proponents consider GHG emissions mitigation and climate resiliency when they develop projects seeking funding through the Investing in Canada Infrastructure Program. Because a harmonized approach is critical, Infrastructure Canada is establishing a federal-provincial-territorial working group to develop

the Climate Lens.

Additional Public Infrastructure-Based Results

Newfoundland and Labrador

The Provincial Government continues to work with Regional Service Boards and municipalities across the province to fully implement the *Provincial Solid Waste Management Strategy*. Ongoing infrastructure investments to consolidate and close-out landfills in favour of modern facilities has helped reduce methane emissions from sites that now transport waste to the Robin Hood Bay regional waste management facility, which is equipped with methane capture and flaring technology.

In addition, the Provincial Government has made significant contributions to a broad range of water and wastewater projects under the Clean Water Wastewater Fund, the New Building Canada Fund and other provincial and federal-provincial programs. These investments include a $10 million project in the City of Corner Brook to separate sewer and stormwater, thereby improving energy efficiency by reducing the volumes of wastewater to be treated.

Northwest Territories

The GNWT is developing a Waste Resource Management Strategy that would address solid waste. Specifically, it would outline a plan in terms of programs, initiatives and policies to reduce, divert and manage waste in the NWT.

Regarding water and wastewater treatment, under the Clean Water Wastewater Fund, a total of 29 projects were approved in 18 out of 33 NWT communities (representing 55% of NWT communities). The fund was managed through a competitive application process, targeting the community government infrastructure deficit. Such funding allowed for much needed rehabilitation and replacement in these water and wastewater treatment systems in these communities.

Working with the University of Fairbanks, Alaska, the NWT has generated projections of future climate conditions for NWT communities. The NWT has released an updated knowledge agenda to guide research efforts, including Traditional Knowledge and community-based research, and will develop an Action Plan to facilitate this work in 2018.

PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE

FIRST ANNUAL SYNTHESIS REPORT ON THE STATUS OF IMPLEMENTATION

CONTENTS

EXECUTIVE SUMMARY

In response to the critical and urgent need to take action on climate change, Canada's First Ministers[1] adopted the Pan-Canadian Framework on Clean Growth and Climate Change on December 9th, 2016. This collaborative plan aims to reduce emissions, build resilience to a changing climate and enable sustainable economic growth. The Pan-Canadian Framework includes more than fifty concrete policy actions spanning the country and all sectors of the economy.

First Ministers directed federal, provincial, and territorial governments to work together and with meaningful involvement of Indigenous Peoples to implement the Pan-Canadian Framework and report back on progress. Given the breadth of the Framework, responsibility for putting it into action cuts across multiple government portfolios, and implicates Ministers responsible for environment, energy, infrastructure, transportation, forestry, agriculture, innovation, emergency management, and finance. This report summarizes the collaborative progress achieved across these nine areas and others, such as protecting human health.

Federal, provincial, and territorial governments are engaging and partnering with Indigenous Peoples as actions are implemented. In addition, in order to provide a structured, collaborative approach for ongoing engagement with Indigenous Peoples, the Government of Canada is collaborating with First Nations, Inuit, and the Métis Nation to establish three distinctions-based senior bilateral tables based on recognition of rights, co-operation and partnership.

Summary of Progress

In the first year of implementation, federal, provincial, and territorial governments have made good progress in starting to put the Pan-Canadian Framework into action. Funding has been mobilized to support many of the new actions included in the Framework, including significant transfers from federal to provincial and territorial governments, as well as to representatives of Indigenous Peoples and governments. New regulations have been drafted and consulted on, and new policies and programs are being established and implemented in all jurisdictions. Governance, reporting and oversight structures have been established to track overall progress nationally and ensure success.

Work is underway to ensure **carbon pricing** applies across Canada. Some jurisdictions already have carbon pricing systems in place, while others are working to develop and implement pricing systems. In jurisdictions that do not implement a system that meets the federal benchmark, a carbon pricing backstop will apply.

Governments have made significant progress implementing **complementary measures to reduce emissions** across the economy. These include regulations – such as phasing out coal-fired power generation by 2030, reducing methane emissions from the oil and gas sector, continuing to improve the emissions performance of vehicles, and introducing a clean fuel standard. They also include work to develop and adopt increasingly stringent building codes to reduce energy use, as well as work to accelerate the uptake of zero emissions vehicles. These and other actions cut across all sectors of the economy, with the aim of reducing emissions or increasing carbon storage. New funding will support these mitigation activities, such as investments in clean and renewable power generation.

Actions are underway to advance **adaptation** efforts and build resilience to the impacts of the changing climate. This includes significant new infrastructure investments, including a $2 billion cost-shared Disaster Mitigation and Adaptation Fund, and new actions being undertaken by jurisdictions to address flood risks exacerbated by climate change. New programs are being established that will help protect human health and vulnerable regions from climate change impacts, including programs that support healthy Indigenous communities. Codes and standards to support climate resilience are under development and efforts have been advanced to build regional capacity for adaptation action across all the priority areas identified in the Pan-Canadian Framework.

Governments are working to make Canada a leader in the global clean economy through a variety of actions focused on **clean technology, innovation, and jobs**. This includes work to create a strong pipeline of clean technology ideas while positioning Canada's energy, mining, forest and agriculture sectors as leaders in the new

[1] To note, Saskatchewan and Manitoba decided not to adopt the Pan-Canadian Framework.

resource economy. Federal, provincial and territorial governments are working together to enable access to capital for clean technology firms to help them develop and demonstrate the commercial viability of their new clean technology products. Programs are also being implemented to foster technology adoption through government procurement to support a strong domestic clean technology market. A federal Clean Growth Hub has been established to streamline government support for clean technology producers. Governments are also working together on a clean technology data strategy.

Looking Ahead

As federal, provincial, and territorial governments implement this Framework, they will continue to respect the rights of Indigenous Peoples with robust, meaningful engagement drawing on their Traditional Knowledge. A key priority is to strengthen the collaboration between governments and Indigenous Peoples on mitigation and adaptation actions, based on recognition of rights, respect, cooperation, and partnership. Indigenous Peoples will be important partners in developing real and meaningful outcomes that position First Nations, Inuit, and the Métis Nation as drivers of climate action in the implementation of the Pan-Canadian Framework.

While good progress has been made to date, much work remains. This includes continued work to implement carbon pricing systems across Canada in 2018, as well as to develop and finalize a variety of regulations, policies, and programs, including pan-Canadian collaboration on electricity interconnections, building codes, and a zero-emissions vehicle strategy. Other work includes launching new programs to support adaptation, finalizing green infrastructure investments, deepening engagement on clean technology innovation and ensuring effective implementation of clean technology investments and initiatives.

In future years, as funding begins to flow and policies and regulations come into force, the focus of subsequent reports will shift toward concrete results and outcomes to track progress. Over the coming year, federal, provincial, and territorial governments will work collaboratively through the Canadian Council of Ministers of the Environment and through Innovation Ministers to develop and refine ways to measure progress, including through the use of indicators and metrics. Future reports will also identify policy gaps and opportunities, and will provide recommendations on new or expanded areas of work to address them.

1 INTRODUCTION

One year ago, Canada's First Ministers committed to take further action on climate change by adopting the Pan-Canadian Framework on Clean Growth and Climate Change. The Pan-Canadian Framework recognizes the significant costs and risks associated with climate change – risks to the environment, as well as to the health, security, and future prosperity of Canadians. It also positions Canada to take advantage of the significant clean growth opportunities associated with taking action on climate change.

The Pan-Canadian Framework is built on four pillars: pricing carbon pollution, complementary actions to reduce emissions across the economy, adaptation and climate resilience, and clean technology, innovation and jobs.

Over the past year, federal, provincial, and territorial governments have worked together, as well as with Indigenous Peoples, to start implementing the measures in the Pan-Canadian Framework to reduce greenhouse gas (GHG) emissions, build resilience to the changing climate, and enable sustainable economic growth. These actions will help Canada meet or even exceed its 2030 climate change target of a 30% reduction below 2005 GHG emission levels.

In the launch of the Pan-Canadian Framework, First Ministers directed federal, provincial, and territorial governments to report annually to Canadians and First Ministers on progress achieved in order to enable governments to take stock and give direction to sustain and enhance efforts over time.

This first annual synthesis report summarizes progress made over the past year by federal, provincial, and territorial governments in implementing new actions across the four pillars of the Pan-Canadian Framework.

The structure of this report follows that of the Pan-Canadian Framework and provides:

- A high-level overview of progress on each of the four pillars of the Pan-Canadian Framework, including early actions underway and key overall accomplishments to date;
- An overview of the status of reporting and oversight mechanisms and an update on ongoing efforts to improve emissions inventories, projections, and reporting;
- Highlights of expected actions and areas of work for the year ahead; and
- An annex listing all Pan-Canadian Framework actions undertaken in the last year or currently underway by all jurisdictions.

2 PRICING CARBON POLLUTION

Carbon pollution pricing is central to the Pan-Canadian Framework given that it is broadly recognized as one of the most effective, transparent, and efficient policy approaches to reduce GHG emissions. Some provinces have already established carbon pollution pricing systems, while other provinces and territories are moving forward to design or put in place their own systems. The carbon pollution pricing benchmark established by the federal government gives provinces and territories the flexibility to implement either an explicit price-based system (i.e., a carbon tax or a hybrid system with a carbon levy and performance-based system) or a cap-and-trade system.

Significant progress has been made to implement carbon pricing in Canada. Many of these actions build on existing carbon pricing programs already in place in Canadian jurisdictions, which cover about 85% of Canada's economy and population. Economy-wide carbon pricing is in place in several provinces:

- British Columbia has North America's most comprehensive carbon tax currently at $30/tonne and increasing by $5 per year starting in 2018, to a maximum of $50 per tonne, with a targeted performance-based system for industrial emitters;
- Québec had a carbon levy (2007-2015), and has also had a cap-and-trade system since 2013, which guarantees GHG reductions;
- Ontario has a cap-and-trade system (2017); and,
- Alberta extended the reach of its carbon pricing system in 2017, increasing coverage across the economy by introducing a carbon levy, to complement its intensity-based pricing system. A new output-based pricing system will be introduced in 2018.

On September 22, 2017, Ontario, Québec, and California signed an agreement **linking the carbon markets** of the three jurisdictions. This agreement integrates and harmonizes emissions cap programs, allowing entities to meet their emissions compliance obligations in a more flexible and cost-effective manner while maintaining the environmental integrity of each jurisdiction's progress.

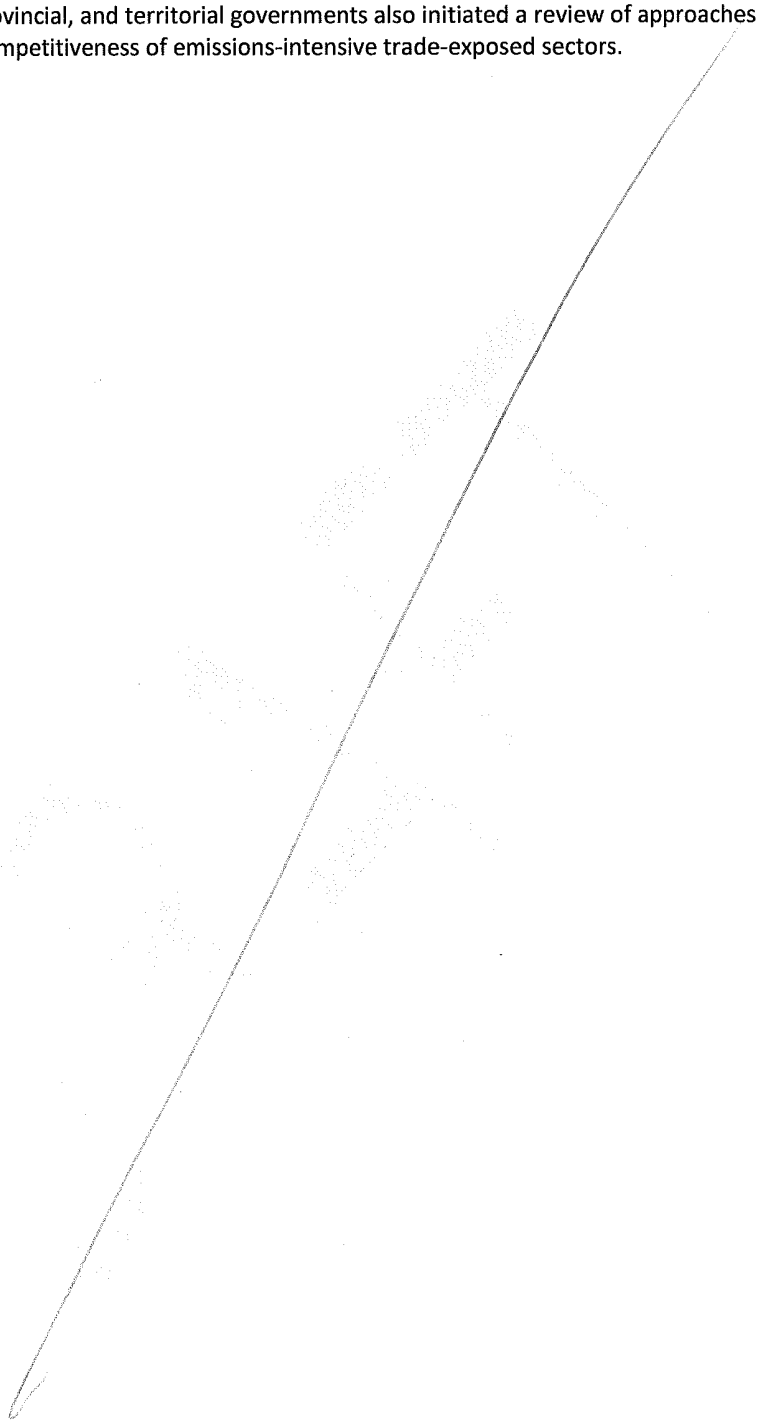
This year, progress was made by other provinces and territories[2] to inform the design and implementation of carbon pricing, including stakeholder engagement to support program development:

- Nova Scotia announced an Agreement-in-Principle with the federal government on clean growth and climate change, and conducted stakeholder consultation on design options for developing a cap-and-trade program. Nova Scotia plans to develop cap-and-trade program regulations in 2018.
- Manitoba announced a Made-in-Manitoba Climate and Green Plan that includes carbon pricing.
- New Brunswick committed to introducing a carbon pricing mechanism during the current session of the legislature.
- Prince Edward Island is preparing to launch a carbon pricing mechanism in 2018.
- Newfoundland and Labrador has passed legislation for a performance-based system for large onshore industrial emitters and has put in place reporting requirements.
- Yukon is studying the impacts of carbon pricing on its residents, businesses and industry.
- The Northwest Territories (NWT) is examining an approach to implementing carbon pricing in the NWT in a manner that reflects the unique circumstances in the NWT.
- Nunavut is studying the impacts of carbon pricing on Nunavummiut.

The federal government released a technical discussion paper outlining the proposed design of the federal carbon pricing backstop system—composed of a levy and performance-based pricing system—for public comment. [The federal government also completed a study with the territories to assess potential impacts of carbon pricing and inform solutions that address their unique circumstances, including high costs of living and energy, and challenges

[2] While Saskatchewan and Manitoba have not endorsed the Pan-Canadian Framework, their respective actions and any collaborative efforts to address climate change are included in this report. Saskatchewan did not report on any carbon pricing measures.

with food security.] Discussions with Indigenous Peoples are ongoing to find solutions to address their unique circumstances. Federal, provincial, and territorial governments also initiated a review of approaches and best practices to address the competitiveness of emissions-intensive trade-exposed sectors.



3 COMPLEMENTARY ACTIONS TO REDUCE EMISSIONS

Under the Pan-Canadian Framework, federal, provincial, and territorial governments committed to continue taking meaningful action to reduce GHG emissions across all regions and sectors of the economy. The Pan-Canadian Framework approach complements carbon pricing by expanding and linking clean electricity systems across the country, improving the energy efficiency of vehicles, buildings, and industries, putting more zero-emission vehicles on the road, using cleaner fuels to power the economy, and reducing emissions and increasing carbon storage in the agriculture, forestry, and waste sectors. These actions will help cut emissions and will also drive clean growth by spurring development of new clean technologies and creating jobs in many sectors.

In the first year of implementation, significant progress was made to advance measures across all sectors. Funding has been announced and mobilized, and programs have been launched. Regulations are being designed, drafted, and consulted on. New programs are being established. Many of these processes can take years to initiate, but due to focused action and collaboration, work is progressing on accelerated timelines. Collaboration across jurisdictions has been very strong, with governments working together to coordinate actions to ensure long-term success. Responsibility for reporting on progress is shared across a number of federal-provincial-territorial Ministerial tables. Environment Ministers are overseeing progress on a number of key regulatory measures, including for methane, coal, and natural gas. Given that energy production and use accounts for over 80% of Canada's GHG emissions, Energy Ministers have a critical role to play, and are leading on almost half of the collaborative actions in the Pan-Canadian Framework, including on electricity, energy efficiency, and aspects of clean technology and innovation. Many of these actions build on individual and collective work by the federal, provincial and territorial governments through the Canadian Energy Strategy. Transportation Ministers have been overseeing work on important measures to help transition Canada's transportation system towards a low-carbon future, in collaboration with Energy and Innovation Ministers. Forest Ministers and Ministers of Agriculture have been overseeing mitigation actions for the forestry and agriculture sectors.

A number of jurisdictions are making investments to support action in a number of areas such as renewable energy and energy efficiency. The federal government announced billions of dollars in funding to support new investments in electricity infrastructure, transportation systems, energy efficient buildings, and forestry and agricultural projects. Discussions between federal, provincial, and territorial officials on the details of new supporting investments are well underway.

3.1 ELECTRICITY

Non-emitting electricity systems are the foundation of a clean economy. They can support emissions reductions across other sectors like transportation, industry, and buildings. Canada already has one of the cleanest electricity systems in the world and is striving to expand capacity, reduce emissions, and drive clean growth across the economy.

Federal, provincial, and territorial governments committed to work together to move away from traditional coal-fired power generation and toward renewable and non-emitting sources of energy through a combination of regulations on coal and natural gas, and investments in clean energy and supporting infrastructure. Governments also committed to help reduce reliance on diesel in partnership with Indigenous Peoples and northern and remote communities. Good progress was made in 2017 and implementation is on track. All jurisdictions took important steps in 2017 to increase the use of clean electricity, including regulatory amendments, new action plans, policies and programs, and significant new investments and construction of renewable capacity.

To accelerate the phase-out of traditional coal units across Canada by 2030, the federal government published amendments to the coal-fired electricity regulations [in December 2017]. Alberta is also working to phase out its use of coal-fired power and has negotiated agreements with coal generators to phase out coal by 2030. Draft federal regulations for natural gas-fired power [*were also published in December 2017*] with final regulations planned for 2018.

The Regional Electricity Cooperation and Strategic Infrastructure Initiative (RECSI) has made important strides bringing provincial and federal governments and utilities together to identify the most promising electricity infrastructure projects. Provinces and territories are also advancing renewable electricity regulation, policies and programs to increase energy generation capacity from renewable and non-emitting energy sources. For example, Québec announced an implementation plan for its 2030 Energy Policy with a commitment to increase renewable energy generation capacity by 25 percent. Similarly, Saskatchewan is working towards achieving a target of 50 percent of total generation capacity from renewable energy sources by 2030; the province recently launched a utility-scale solar electricity generation procurement project.

Many jurisdictions committed new funds to help reduce reliance on diesel, working with Indigenous Peoples and northern and remote communities. For example, Yukon is working to implement the Independent Power Production policy by early 2018 to support the participation of independent power products and the development of environmentally sound and affordable electricity. Provinces and territories also worked together through the Pan-Canadian Task Force on Reducing Diesel Use on Off-Grid Communities to develop a common vision for remote energy use.

Announced in August 2017, the governments of Canada and Ontario are collaborating with Wataynikaneyap Power to **connect Pikangikum First Nation to Ontario's power grid**. A 117-kilometre power line from Red Lake to Pikangikum will provide clean, safe and reliable power and eliminate the community's dependence on diesel fuel. Wataynikaneyap Power is a licensed transmission company equally owned by 22 First Nation communities, working in partnership with Fortis Ontario Inc.

Alberta proclaimed the ***Renewable Electricity Act*** and launched the Renewable Electricity program to support the development of 5,000 megawatts of renewable electricity capacity by 2030. The province also announced $35 million to fund Indigenous climate leadership initiatives, including renewable and solar energy projects in First Nation and Metis communities.

Newfoundland and Labrador continued work towards the completion of the **Muskrat Falls hydroelectric project**. When completed, 98% of Newfoundland and Labrador's electricity will come from renewable sources, with surpluses exported to Nova Scotia and beyond. The Holyrood Thermal Diesel Generating station, which emits over one million tonnes of GHG emissions per year, will be decommissioned.

3.2 BUILT ENVIRONMENT

Canadians spend much of their lives in buildings that require energy for heating, cooling, lighting, and other services. Designing and retrofitting buildings to use energy more efficiently and using more energy efficient appliances and equipment can cut emissions, improve comfort, increase resilience, and help save money on utility bills.

Under the Pan-Canadian Framework, federal, provincial, and territorial governments committed to improve efficiency by updating building codes, labelling building energy use, investing in retrofits, and setting new standards for appliances and equipment. Supporting the building industry to increase capacity on energy efficient standards and building practices can help facilitate many of the changes needed in the building sector. Governments also committed to collaborate with Indigenous Peoples as they move to more efficient building standards.

Good progress was made in 2017, and implementation is on track. Federal, provincial, and territorial Ministers of Energy released Canada's Buildings Strategy, which includes an implementation plan for the Pan-Canadian Framework actions on the built environment.

British Columbia has a new **2017 Energy Step Code** that enables communities that opt in to gradually progress to net-zero energy ready buildings, with substantial opportunities to reduce emissions.

In addition, key funding envelopes have been announced and details are being developed, including the $2 billion Low Carbon Economy Fund. Launched by the Government of Canada on June 15, 2017, the Fund is comprised of two parts: the Leadership Fund and the Challenge Fund. The former will support provincial and territorial actions to reduce GHG emissions and spur clean growth in various sectors of the economy and the latter will support innovative initiatives proposed by a wider range of stakeholders.

The **Green Ontario Fund** was launched in August 2017 to support the deployment of commercially available technology to reduce GHG emissions from buildings or from the production of goods. As part of Ontario's Climate Change Action Plan, it is funded by proceeds from the province's cap on pollution and carbon market. This year, the province is investing $377 million in the Green Ontario Fund, with further investments planned for the next four years. The agency's first program, GreenON Installations, offers single-family homeowners, at no cost, the installation of a smart thermostat and advice on energy cost savings.

Efficiency requirements for new buildings are also being implemented, and retrofits are being supported through financial assistance programs, new energy benchmarking practices, and infrastructure investments. Manitoba created a new agency to promote energy conservation and efficiency. Newfoundland and Labrador continues to require that new buildings and large renovations receiving any level of provincial funding be built sustainably. Other key actions include new federal standards for heating equipment, a federal-provincial-territorial strategy for making equipment more energy efficient, and new efficiency standards for products. In order to support sustainable housing in Indigenous communities, the Government of Canada is initiating a research project through the National Research Council to define guidelines to support sustainable housing in First Nations communities.

3.3 TRANSPORTATION

The transportation sector is a major source of emissions in Canada. It accounted for nearly 24% of emissions in 2015. There are many opportunities to improve and support transport system efficiency, switch to alternative fuels, and take advantage of new vehicle technologies to achieve emissions reductions from this sector.

Federal, provincial, and territorial governments committed to modernize the transportation system through new emissions standards for vehicles, a plan for establishing retrofit requirements for heavy-duty vehicles, and a strategy to put more zero-emission vehicles on the road. Governments also committed to enhance investments in lower-emitting modes of transportation, including public transit, electric vehicle charging and alternative fuel infrastructure. In collaboration with provinces and territories, industry and other stakeholders, the federal government also set out to develop a clean fuel standard to cut emissions from fuels used in transportation, buildings, and industry.

Alberta is **supporting public transit** through a number of programs and initiatives, including a commitment of $1.53 billion to the Calgary Green Line LRT and an additional $176 million for a total of $600 million to support the Southeast Valley Line LRT in Edmonton.

Implementation is on track to reduce emissions and make the transportation sector more efficient. Federal, provincial, and territorial governments are working together and have engaged with expert working groups to provide advice on the development of a national strategy for zero-emission vehicles (ZEVs). This strategy will complement and build on ongoing actions across jurisdictions, including British Columbia's Clean Energy Vehicle Program, Prince Edward Island's electric vehicle (EV) education campaign, and New Brunswick's installation of 15 new EV charging stations.

Québec is working to **increase the number of zero-emission vehicles** on the road by 2020. Proposed regulations to implement its ZEV standard, coupled with subsidies, underwent consultation in the summer of 2017.

In addition, the federal government published draft regulations to implement emissions standards for heavy-duty vehicles, and many jurisdictions are developing plans to reduce transportation emissions. The federal government has been working with provinces and territories to develop a Clean Fuel Standard framework; a discussion paper

was published this year, consultations were held, including with Indigenous Peoples, and draft regulations are expected in 2018.

3.4 INDUSTRY

Industries are the backbone of the Canadian economy but are also the largest source of emissions. From manufacturing to mining to oil and gas extraction, industries hold great potential to improve efficiency and find new and cleaner ways of operating.

Governments committed to introduce regulations to reduce methane and hydrofluorocarbon (HFC) emissions from industrial operations, help industries improve their energy efficiency, and invest in research and development (R&D) and deployment of new industrial technologies that help reduce emissions.

Implementation is on track. The federal government published draft regulations to reduce methane emissions from the oil and gas sector, and discussed approaches with Alberta, British Columbia and Saskatchewan that will allow for province-specific solutions. Draft federal regulations to phase down the use of HFCs have been published. A number of jurisdictions created or expanded industrial energy efficiency incentives, performance standards, and other supportive measures.

On May 27, 2017, the federal government published draft **regulations to reduce emissions** of methane, a potent GHG, from the oil and gas sector. The regulations aim to reduce unintentional leaks and intentional venting of methane, as well as ensuring that oil and gas operations use low-emission equipment and processes. These actions are expected to reduce GHG emissions by about 20 Mt by 2030.

Federal, provincial, and territorial governments also committed significant funds for research, development, demonstration, and deployment of new cleaner industrial technologies, including for the oil and gas sector.

Emissions Reduction Alberta (ERA)'s $50 million Oil Sands Innovation Challenge focuses on demonstration projects that involve prototype testing, field piloting, commercial demonstration, or first-of-kind technology deployments of innovative technologies that reduce GHG emissions and improve the cost competitiveness of bitumen production and processing.

3.5 FORESTRY, AGRICULTURE, AND WASTE

Canada's forests, wetlands and agricultural soils represent a major stock of stored carbon, sequestering it from the atmosphere. Managing and expanding this stored carbon is an important part of global climate action.

Governments have committed to protect and enhance carbon sinks, increase the use of wood in construction, support innovative technologies and better practices to reduce emissions from these sectors, and work together to identify opportunities to produce renewable biofuels and bioproducts.

Implementation is on track, with investments made across jurisdictions to enhance carbon storage, protect carbon stocks in forests and agricultural soils and at the same time consider mitigation actions that could help improve sector resilience to climate change. Federal, provincial, and territorial governments are increasingly focused on exploring how forest and agriculture management practices could increase carbon sinks and reduce GHG emissions. To this end, part of the $2 billion Low Carbon Economy Fund will be used to support eligible projects in the forestry and agriculture sectors.

British Columbia's **Forest Carbon Initiative** is a $150-million program over five years, starting in 2017, to develop and implement forest activities such as reforestation, increased planting density, and fertilization that reduce emissions and sequester carbon in B.C.'s Crown forests. Outcomes of the initiative, depending on the portfolio mix, are estimated to be: $26 million annually in GDP impact; 295 jobs per year over five years; and, 50,000 hectares per year treated over five years. Fully implemented, the initiative aims to deliver GHG benefits in the medium-term (2030), longer-term (2050) and beyond.

In July 2017, federal, provincial, and territorial Ministers of Agriculture reached an agreement on the key elements of Canada's new agricultural policy framework, the Canadian Agricultural Partnership, which will include programs to support clean growth and climate change as part of a $3 billion investment. Under the Partnership, jurisdictions will make investments to enhance carbon storage in agricultural soils, generate bioproducts and biofuels, and advance research and innovation to support GHG emission reductions in the agriculture sector.

Several provincial and territorial governments have implemented actions to produce biomass/bioproducts, improve on-farm energy efficiency, and develop renewable energy through investments in clean technologies. For example, Saskatchewan continues to support improvements in farming practices that help reduce GHG emissions and enhance carbon sequestration, including precision agriculture, zero-till and manure management.

Federal, provincial, and territorial governments are also helping expand the production of bioenergy and bioproducts for multiple uses. One promising application involves helping rural and remote communities reduce reliance on diesel. Governments also continue to promote the use of wood in construction. For example, Alberta, British Columbia, Québec, and New Brunswick recently recommitted to use more low-carbon renewable materials like wood in municipal and government-funded buildings.

In the waste sector, several provincial and territorial governments are undertaking waste diversion projects, as well as projects to use wastes as fuel, for example using wood waste in cement production.

Newfoundland and Labrador continues to work with Regional Service Boards and municipalities across the province to fully implement the **Provincial Solid Waste Management Strategy**. Ongoing infrastructure investments are consolidating and closing out landfills in favour of modern facilities. Composting pilot projects have been developed in several regions of the province to help reduce methane emissions.

3.6 GOVERNMENT LEADERSHIP

Governments can help drive investment and bring new approaches and technologies to market faster by supporting new clean technology through procurement rules and policies.

Federal, provincial, and territorial governments committed to set ambitious targets for emissions reductions from government operations, cut emissions from government buildings and fleets, and scale up clean procurement.

Governments have taken action and are on track to reduce emissions from operations and expand clean procurement practices, including work on greening government operations actions plans, as described in section 5.3. British Columbia is leading the charge with its ongoing commitment to be a carbon neutral government. Alberta has committed to installing 854.7kW of solar energy on government owned buildings. Other jurisdictions are also continuing to explore opportunities to reduce emissions through the use of EVs, energy efficiency, retrofits, procuring renewable energy, and green buildings. The federal government is modernizing its heating and cooling plants, investing in renewable energy, and reducing emissions from its buildings and fleets.

In July 2017, the Government of Canada released its **federal operations GHG emissions inventory**, showing that 15 core departments and agencies have collectively reduced emissions by 19% between 2005-06 and 2014-15. The Government of Canada will continue to report publicly on progress toward reducing GHG emissions from its operations by 40% by 2030, and potentially as early as 2025.

3.7 INTERNATIONAL LEADERSHIP

Canada was instrumental in the negotiation of the historic Paris Agreement, in which countries around the world committed to take action to limit global warming to two degrees above preindustrial levels. Continued leadership and global cooperation are key to moving forward and meeting the Paris Agreement commitment to increase ambition over time.

In the Pan-Canadian Framework, the federal government reaffirmed its commitment to invest $2.65 billion in international climate finance by 2020, to explore options with provinces and territories for the acquisition of international emissions allowances, and to collaborate with provinces and territories as well as international partners to ensure that trade rules support climate policy. The federal government also reiterated its commitment to continue to engage with and support Indigenous Peoples' action on international climate change issues. This includes work through the United Nations Framework Convention on Climate Change (UNFCCC) to formulate a platform for Indigenous Peoples, as agreed to in the Paris decision.

Implementation is on track. Of the $2.65 billion that Canada has pledged to help developing countries transition to low-carbon, climate resilient economies, the federal government has announced more than $900 million in funding contributions. In addition, Québec announced $25.5 million mainly for Francophone countries that are most exposed to the impacts of climate change. Further to contributions to multilateral development banks, Canada is also providing direct support to developing countries to reduce emissions and adapt to the effects of climate change. This includes, for example, $13 million to support climate smart agriculture development in Central America; $39 million to help build the resilience of farming households in Senegal, with a particular emphasis on women and young people; and $15 million to promote climate technology innovation in Vietnam.

The federal government, in consultation with provinces and territories, has been working with international partners to assess how best to design and use market and non-market mechanisms under the Paris Agreement. Québec, British Columbia, Ontario, and the State of California have demonstrated leadership through their partnership in the Western Climate Initiative, as has British Columbia through its partnership with California, Washington, Oregon and Alaska (as an observer) in the Pacific Coast Collaborative. Discussions on trade and climate policy have been initiated through the World Trade Organization and other international forums. The federal government has also begun working with Indigenous Peoples to establish a Local Communities and Indigenous Peoples' Platform under the UNFCCC, including by convening informal discussions and through formal negotiations at COP23 in Bonn, Germany.

4 ADAPTATION AND CLIMATE RESILIENCE

In the Pan-Canadian Framework, federal, provincial, and territorial governments underscored the significant risks that climate change impacts pose to communities, the health and well-being of Canadians, the economy, and the natural environment. Canada's northern and coastal regions and Indigenous Peoples are especially vulnerable. The PCF represents the first time that federal, provincial, and territorial governments have identified priority areas for collaboration to build resilience to a changing climate across the country:

- Ensuring Canadians have information and multidisciplinary expertise to consider climate change in their planning and decision-making;
- Building climate resilience through infrastructures
- Working to protect the health and well-being of Canadians;
- Supporting particularly vulnerable regions and Indigenous Peoples in addressing climate impacts; and
- Reducing the risks to communities from climate-related hazards and disasters.

For each priority area, federal, provincial, and territorial governments identified new actions that would advance efforts towards a more resilient Canada. These actions range from measures to improve access to climate science and information that supports adaptation decision-making, to investments in built and natural infrastructure to increase climate resilience in communities, to efforts that help us better understand and take action to address climate-related health risks such as extreme heat and infectious diseases.

This first year of implementation provided a solid foundation for this work, including the announcement of significant new investments in adaptation and climate resilience. New programs to support adaptation efforts are being established, codes and standards for climate resilience are under development, and initiatives to build regional capacity for adaptation action across all the priority areas have been launched.

Efforts are underway across many portfolios to advance adaptation and resilience (e.g., health, relations with Indigenous Peoples, emergency management, infrastructure, local government, natural resources, fisheries, agriculture, energy, economy and innovation). Ministers of Agriculture are advancing efforts to adapt to the impacts of climate change through the Canadian Agricultural Partnership that will build capacity in the agricultural sector while also supporting science, research and innovation. In addition, Forest Ministers are undertaking work to better combat the spread of pests that destroy forests, such as the mountain pine beetle and spruce budworm.

4.1 TRANSLATING SCIENTIFIC INFORMATION AND TRADITIONAL KNOWLEDGE INTO ACTION

Understanding how the climate and the environment are changing and how future conditions will impact Canada is essential for taking action to adapt and build resilience across the country. Climate science and information and Indigenous Knowledge can inform important decisions that will help manage risks, reduce costs, and ensure society thrives in the face of a changing climate.

As the foundation for advancing adaptation in Canada federal, provincial, and territorial governments committed to improve access to authoritative, foundational climate science and information to support adaptation decision-making across the country, build regional capacity and expertise, respectfully incorporate Traditional Knowledge, and mobilize action.

To support hazard mapping activities and risk assessments in the Atlantic region, New Brunswick has made **climate change data** as well as other data to inform flood risk mapping (e.g., LiDAR) publically accessible. Nova Scotia has produced and made publicly available regional climate data and local flood risk maps to be used by planners, researchers and the public across the province. Prince Edward Island has secured federal funding approval under the National Disaster Mitigation Program to conduct a risk assessment of coastal infrastructure assets, to develop coastal hazard maps for the entire coastline, and to make the data publicly accessible.

Implementation is on track with all governments working in partnership to improve climate services in Canada, including the design phase of a Canadian Centre for Climate Services. The federal government is also working with governments and organizations to build adaptation expertise and develop regionally-specific risk assessments and adaptation information.

The **Canadian Centre for Climate Services** will deliver trusted climate information, data, and tools that will support adaptation decision-making. Training, support, and user-driven products will ensure tools are used while partnerships with other organizations will shape and deliver services across the country.

Provinces and territories have undertaken initiatives to build regional capacity for decision-making and addressing climate impacts, including providing funding for regional organizations. For example, Ontario is planning to launch a new climate change organization to ensure decision-makers have access to cutting edge, region-specific climate impact information, as well as the services required to ensure users with different levels of capacity can make use of it. Saskatchewan is funding research projects to help mitigate and enhance resilience to climate change, including research on drought resistant crops, prediction and management of pests and diseases, carbon sequestration through agronomic practices, and minimizing the vulnerability of forests to climate change.

Manitoba is providing funding support of $400,000 for the creation of the **Prairie Climate Centre** to develop climate data to inform decision-making and address climate impacts.

The Maliseet Nation Conservation Council, with support from the federal government, is working with three Maliseet communities in New Brunswick to build resilience to climate change. The project combines **community knowledge** from traditional ecological surveys and interviews with Elders, while data from a vulnerability assessment on final strategic planning document will help the communities better prepare for climatic changes.

4.2 BUILDING CLIMATE RESILIENCE THROUGH INFRASTRUCTURE

Designing and investing in built and natural infrastructure that can withstand and help us manage changing climate conditions is essential to the health, safety, and sustainability of our communities and economy.

Federal, provincial, and territorial governments committed to partner to invest in infrastructure projects that build climate resilience and to work together to integrate climate resilience in building design codes and guides.

Implementation is on track for 2017, with significant investments to support climate resilience through infrastructure by all levels of government. For example, a portion of the cost-shared $9.2 billion announced by the federal government for Integrated Bilateral Agreements with provinces and territories will be invested in adaptation and climate resilience, and on a cost share basis an additional $2 billion has been committed to a Disaster Mitigation and Adaptation Fund for large-scale infrastructure projects. This fund represents Canada's largest dedicated source of funding for built and natural, large-scale infrastructure projects designed to protect communities from natural disasters and extreme weather and build climate resilience. Manitoba is also making strategic infrastructure investments of no less than $1 billion annually to support economic growth and improve flood protection.

Governments are also working together to build the tools to help ensure significant investments are resilient to climate change. For example, a federal-provincial-territorial Working Group is helping develop a Climate Lens to ensure climate resilience is considered for Investing in Canada Infrastructure Program and Disaster Mitigation and Adaptation Fund projects.

Research is underway to update building codes and guidance and standards are being developed to support decision-making for climate resilient infrastructure. Some provincial and territorial governments are requiring consideration of climate change impacts in infrastructure design, and undertaking initiatives to increase resilience to flooding.

Since 2008, Québec has been assessing natural risks and developing and **implementing climate change adaptation strategies** for Nunavik transportation infrastructure built on permafrost. The ongoing research projects assess the effectiveness of full-scale adaptation solutions.

More than 90% of Newfoundland and Labrador's population is situated along the coastline which is affected by storm surges and erosion. The province is enhancing its **network of coastal monitoring stations**. There are currently 116 stations in the province, including five in northern Labrador Indigenous communities. Data from these stations informs infrastructure, planning, and development decisions.

4.3 PROTECTING AND IMPROVING HUMAN HEALTH AND WELL-BEING

Focused efforts to address rising climate-related health risks help Canadians take action to protect themselves and prepare the health care system to deal with emerging challenges. Community-based approaches and solutions are key to the vitality and well-being of Indigenous Peoples facing unique and growing challenges related to health.

Federal, provincial, and territorial governments committed to collaborate to address climate change-related health risks, including extreme heat, and climate-driven infectious diseases, such as Lyme disease. The federal government committed to support First Nations and Inuit communities to undertake health adaptation projects and work with the Métis Nation on addressing the health effects of climate change.

The Government of the Northwest Territories has developed **public health advice to minimize health impacts** due to wildland fire smoke and a visibility index tool to estimate current air quality and identify appropriate actions. NWT has also been working to deploy portable air monitoring equipment during smoke events, and update the health and social service system's emergency response capacity and preparedness.

Good progress has been made in 2017 with federal, provincial, and territorial governments advancing efforts to reduce the harmful consequences of climate change on the health and well-being of Canadians. For example, provinces and territories have developed new heat warning thresholds, expanded Heat Alert and Response Systems for smaller communities, and advanced monitoring and awareness building of climate change impacts on health. The federal government has launched a framework and action plan on Lyme Disease that will focus on surveillance, education and awareness, as well as guidelines and best practices related to prevention, diagnosis and treatment. It is also increasing support for First Nations and Inuit communities to undertake climate change and health-adaptation projects and working with the Métis Nation to address the health effects of climate change.

As part of new federal funding for climate change health initiatives, the first call for proposals under the new **Infectious Diseases and Climate Change Fund** was issued to address the impact of climate change on human health by building and increasing access to infectious disease-based evidence, education, and awareness.

A new website, www.climatetelling.info, has also been created to support Indigenous Peoples in sharing knowledge and information on climate change adaptation.

4.4 SUPPORTING PARTICULARLY VULNERABLE REGIONS

While all regions in Canada are faced with unique challenges from the impacts of climate change, the Indigenous Peoples of Canada, along with coastal and northern regions, are particularly vulnerable and disproportionately affected. Understanding climate change impacts and taking action to adapt will help the most vulnerable communities, traditional ways of life, and economic sectors thrive in a changing climate.

Federal, provincial, and territorial governments committed to invest in infrastructure to protect vulnerable regions and communities, build climate resilience in the North, support community-based monitoring by Indigenous Peoples, and support adaptation in coastal regions.

Implementation is on track for 2017. Infrastructure investments under the Investing in Canada Plan will help build resilience in vulnerable coastal and northern regions, and new and enhanced programming has been launched to support northern communities and Indigenous Peoples in monitoring climate changes, assessing impacts, and identifying adaptation solutions. Progress has been made on the development of the multi-partner Northern Adaptation Strategy that will build capacity in the North.

The governments of Canada, Yukon, the Northwest Territories, Nunavut, Québec and Newfoundland and Labrador as well as northern Indigenous organizations are collaborating to develop the **Northern Adaptation Strategy**. The Strategy, to be finalized in 2018, will set the stage for a new collaborative approach to addressing adaptation throughout the North, including identifying priorities for mobilizing action, fostering innovation to support the development of strong and resilient communities and contributing to renewed Arctic leadership.

Federal programming has been renewed to support adaptation efforts in coastal regions with credible scientific information and predictions of climate change impacts on fisheries, ecosystems and coastal infrastructure. Targeted regional efforts have been undertaken to increase resilience to flooding.

As a coastal province, Nova Scotia has focused on increasing its resilience to flooding. The province is developing new dyke standards, restoring salt marshes, and providing funds to municipalities through the **Flood Risk Infrastructure Investment Program**.

In partnership with Yukon First Nations and municipalities, Yukon is planning a new integrated strategy for energy, climate change and green economy to help enhance resilience to climate change across the territory. Yukon is also supporting monitoring and data collection at Herschel Island-Qikiqtaruk Territorial Park to document climate change impacts on the ecosystems and wildlife of this remote arctic island. The Northwest Territories has developed a Climate Change Strategic Framework and supporting adaptation by Indigenous Peoples is a key

priority for the Government of the Northwest Territories. The government is partnering with the NWT Association of Communities to facilitate adaptation efforts across the territory.

Québec, in collaboration with Kativik Regional Government and Consortium Ouranos, is developing a synthesis of **knowledge on Nunavik's projections** on sea and coastal ice, weather extreme events, storm surges and coastal risks in the context of climate change.

4.5 REDUCING CLIMATE-RELATED HAZARDS AND DISASTER RISKS

With climate change expected to exacerbate hazards such as floods, wildfires, drought, extreme heat, high winds, and road failures, effective disaster risk-reduction efforts and adaptation measures are key to reducing the severe negative impacts these events can have on communities and the economy.

The 2017 wildfire season in British Columbia saw an unprecedented 1,215,745 hectares burned, almost eight times the 10-year average area burned for 2006-2016. More than 65,000 people were displaced and firefighting costs exceeded $550 million. The province has commissioned an independent review of recent events and will continue to fund community-level wildfire risk reduction and landscape-level fire management activities.

Federal, provincial, and territorial governments committed to invest in traditional and natural infrastructure that reduces climate-related disaster risks, advance efforts to protect against floods, and support adaptation in Indigenous communities facing repeated and severe climate impacts.

Implementation is on track for 2017, with billions of dollars under the Investing in Canada Plan, including the new Disaster Mitigation and Adaptation Fund, for investments in traditional and natural infrastructure to reduce climate-related hazards and disaster risks. Federal, provincial, and territorial governments have worked together on developing a Federal Floodplain Mapping Guidelines Series to help advance floodplain mapping activities across jurisdictions in Canada. A wide range of actions are also underway across many jurisdictions to address flood risks.

To enhance efforts to protect against floods, the Québec government held a **forum on flood management solutions** in October 2017. The province also started a project to help 88 coastal municipalities identify and reduce their vulnerabilities to coastal erosion and increase their resilience to climate change.

Additional targeted initiatives include federal enhancements to the First Nations Adapt program for flood mapping activities and provincial and territorial support for municipalities and communities in building long-term resilience to flooding as well as drought events, preventing coastal erosion and landslides through adaptation planning, and sharing of best practices.

In 2017, the **Alberta Community Resilience Program** awarded $58.5 million to 25 projects in 20 municipalities and First Nation communities for the development of long-term resilience to flood and drought events. Additionally, $4.86 million was awarded through the Watershed Resiliency and Restoration Program for 32 projects to restore and improve natural watershed functions to enhance natural resiliency to droughts and flood.

5 CLEAN TECHNOLOGY, INNOVATION AND JOBS

Under the Pan-Canadian Framework, federal, provincial, and territorial governments committed to a common vision of immediate actions designed to accelerate clean growth in Canada and abroad. Collaboration led to advancements in each of the four core elements of the Pan-Canadian Framework's clean technology, innovation and jobs pillar including: building early-stage innovation, accelerating commercialization and growth, fostering

adoption, and strengthening collaboration and metrics for success. These actions will help create the conditions necessary to position Canada as a leader in the global clean economy.

To achieve this, governments are working together on a number of actions including access to capital that will help Canada's clean technology firms grow and expand through financing, and a streamlined "no-wrong door" approach to delivering client services for clean technology producers. Additional initiatives include new procurement programs aiming to promote clean technology adoption, and improved data on Canadian clean technologies. The development of "grand challenges"-type programming is another area of collaboration that focuses on accelerating efforts to solve Canada's big climate change challenges.

Innovation Ministers, along with Ministers in other areas such as Energy and Agriculture, are overseeing progress on key clean technology and innovation measures under the Pan-Canadian Framework. Innovation Ministers have also charged their officials to develop and implement a work plan to increase collaboration on clean growth. This includes sharing information and collaborating on existing and future federal, provincial and territorial initiatives for clean growth.[3] In the first year of implementation, good progress was made across all clean technology and innovation measures in the Framework. Funding has been committed, partnerships are being developed, and programs are being launched.

5.1 BUILDING EARLY-STAGE INNOVATION

Canada needs a strong flow of innovative ideas to become a leader in the development and deployment of clean technologies. Government investments in clean technology research, development, and demonstration (RD&D) will most effectively help Canada meet its climate change goals, create economic opportunities, and expand global-market opportunities, while positioning the country's energy, mining, forest and agriculture sectors as leaders in the new resource economy.

Federal, provincial, and territorial governments committed to support new approaches to early-stage technology development, including breakthrough technologies, to advance research in areas that have the potential to substantially reduce GHG emissions and other pollutants. A key element of this work is supporting the development of innovative ideas to solve the big challenges Canadian communities currently face, such as reducing Canada's rural and remote communities reliance on diesel as a power source.

Strong progress was made in 2017 and key initiatives are on track. Governments are implementing individual measures and at the same time working together through the Federal-Provincial-Territorial Working Group on Clean Growth to collectively identify specific technology "missions" or "challenge" areas that could inform new initiatives to help solve Canada's big challenges and accelerate clean energy innovation.

> The Government of Ontario created a "Grand Challenge" initiative, the **Ontario Solutions 2030 Challenge**, a global call for innovators to propose their solutions to help Ontario industry reduce GHG emissions. The Challenge will support a winning team to bring their transformative technology to market. Phase one of the challenge is currently underway.

In addition, the Government of Canada allocated $200 million in Budget 2017 to support clean technology research, development, and demonstration in Canada's natural resources sectors. As part of this, the $155 million Clean Growth in Natural Resource Sectors Program focusing on the energy, mining, and forestry sectors was launched in October 2017. Project co-funding with provinces and territories is a requirement under this program. Projects are anticipated to be announced in 2018.

5.2 ACCELERATING COMMERCIALIZATION AND GROWTH

Canada's success in the clean technology marketplace requires globally competitive talent, access to the capital and resources needed to demonstrate the commercial viability of products, and strong international networks that

[3] The Federal-Provincial-Territorial Working Group on Clean Technology, Innovation and Jobs was one of four Federal-Provincial-Territorial Working Groups mandated by First Ministers to present options to act on climate change and enable clean growth.

facilitate the cross-border flow of clean technology goods and services. Streamlining and integrating access to support programs and services is also a priority, and essential to building commercial capacity.

Federal, provincial, and territorial governments committed to work together to improve access to government programs, increase support to advance and commercialize innovative technologies, and strengthen support for skills development and business leadership. Governments also committed to collaborate on expediting immigration processes for global talent and highly qualified personnel, promoting exports of clean technology goods and services, and playing a leadership role in international standards-setting processes for new clean technologies.

Implementation of these and other initiatives is well on track for 2017. Governments are working together to create a coordinated "no-wrong door" approach to supporting Canadian clean technology businesses and ensuring full and effective access to relevant government programs and services. For example, Québec and the federal government partnered to offer services through specific portals namely, the Entreprises Québec and Infos Entrepreneurs, to address the needs of entrepreneurs.

Federal, provincial, and territorial governments are also working together to enable access to capital for clean technology businesses to help bring their products and services to market. In its 2017 budget, the Government of Canada allocated $1.4 billion to the Business Development Bank of Canada and Export Development Canada to support the growth of Canada's clean technology firms through project financing. An additional $400 million committed through the Sustainable Development Technology Canada (SDTC) will support clean technology producers in building commercial and export capacity and position Canada as a global leader in the commercialization of clean technology. A framework to guide Canadian clean technology firms' access to capital is being finalized and new projects continue to be evaluated. Companies have also begun to access the new SDTC funding.
Several provinces and territories are also partnering with new federal funding to leverage and maximize outcomes for clean technology producers. For example, the Government of British Columbia and the Government of Canada have established a $40 million partnership between the Innovative Clean Energy Fund and SDTC to support the development of pre-commercial clean energy projects and technologies. The funding available through this joint fund will leverage federal, provincial, territorial and private sector investments.

Nova Scotia and the Atlantic Canada Opportunities Agency (ACOA) provided funding to support start-ups through six **business acceleration programs** that will be delivered this fall, including a new competition to find innovative ways to address problems in the ocean sectors.

A number of provincial governments are also developing strategies to address skills shortages in specific industries. In addition, the federal government has launched a new Global Skills Strategy to support employers in attracting top talent and new skills to Canada. To support clean technology exports and access to global markets, the federal government is implementing an international business development strategy for clean technology. New funding has been allocated to the Standards Council of Canada to support efforts related to international standards-setting.

Saskatchewan is demonstrating global leadership through the transfer of Carbon Capture and Storage (CCS) knowledge and through collaboration with the International Standards Organization in the **development of international standards for CCS** to accurately measure, monitor and verify emission reductions by CCS projects.

5.3 FOSTERING ADOPTION

Support for domestic adoption of Canadian clean technologies is needed for Canada to achieve its climate change goals, build climate-resilient infrastructure, and create a strong domestic clean technology market. This will also help lay a solid foundation of support for Canadian clean technology firms heading to global markets.

Federal, provincial, and territorial governments committed to foster the adoption of clean technology through leading by example as early adopters of clean technology and serving an essential role as a first or "reference customer" for Canadian clean technology goods, services and processes.

Innovative Solutions Canada, a $50 million new innovation procurement program, was launched in the fall to enhance early stage clean technology R&D, including clean technology innovation through the development and validation of novel products and services from Canadian innovators and entrepreneurs.

Governments also committed to working together to support Indigenous Peoples and northern and remote communities in adopting and adapting clean technologies and ensuring business models support community ownership and operation of clean technology solutions to reduce reliance on diesel.

Implementation of initiatives is on track for 2017. Work is underway by federal, provincial, and territorial governments to develop action plans for greening government operations and encourage utilities and municipalities and other public sector entities to adopt clean technologies to lead by example. The Government of Canada's Greening Government Operations Centre is taking steps to support technology adoption that makes government procurement an essential first deployment/ reference market for new technology. Federal and provincial governments also supported visible and effective certification programs (e.g. ENERGY STAR) and other programs to ensure consumer and business confidence, support green procurement, and the adoption of clean technology.

5.4 STRENGTHENING COLLABORATION AND METRICS FOR SUCCESS

An effective strategy to clean technology development, commercialization, and adoption in Canada requires coherent, collaborative, and focused approaches.

Under the Pan-Canadian Framework, federal, provincial, and territorial governments committed to work together to enhance policy and program alignment across jurisdictions and institutions and to establish a clean technology data strategy.

In 2017, good progress was made and implementation is on track. The Government of Canada announced the creation of the Clean Growth Hub to streamline client services, improve federal program coordination, enable tracking and reporting on clean technology results across government, and connect stakeholders to international markets. The Clean Growth Hub is focussing efforts on program coordination, engaging federal partners and consulting stakeholders, including provinces and territories.

Federal, provincial and territorial also undertook concrete action to build better clean technology data capacity and potential, as well as clear metrics for tracing the impact of government activities. The Government of Canada committed $14.5 million to develop a clean technology data strategy to ensure the alignment and integration of data collection and reporting activities to foster consistent, complementary and comparable information on the Canadian clean technology economy. The federal-provincial-territorial working group undertook consultations with provinces, territories, industry and other stakeholders to advance the development of the clean technology data strategy. The first release of national data by Statistics Canada, in fall 2017 [tbc], provided for the first time a comprehensive snapshot of the clean technology economy.

Under the Ontario-Québec Joint Work Plan on Economic Development Through Climate Change Innovation, the two provinces joined forces with Statistics Canada and the sub-committee on the federal clean energy technology strategy, namely to identify issues related to defining the clean technologies sector for the compilation of statistics.

6 REPORTING AND OVERSIGHT

MEASUREMENT AND REPORTING ON EMISSIONS

Under the Pan-Canadian Framework, federal, provincial and territorial governments committed to collaborate through the Canadian Council of Ministers of the Environment (CCME) to track and report GHG emissions in a consistent way across the country, to monitor progress of the Pan-Canadian Framework, and to support international reporting obligations. In 2017, good progress was made in all of these areas. To increase consistency across emissions inventories and GHG emissions reporting, CCME explored opportunities for greater alignment on GHG emissions reporting standards and requirements across various sectors of the economy. While governments are already aligned in some areas, they will continue to explore options for achieving greater consistency of emissions inventories and tracking. CCME also undertook to improve projections of future GHG emissions. In particular, CCME is developing best practices and guidelines on modelling technological change. This guidance will help increase alignment and improve consistency across jurisdictions in this area. Federal, provincial, and territorial governments have also committed to examining options for a pan-Canadian GHG offsets framework to develop best-practices in offset system design to support creation of verified carbon credits that can be traded domestically and internationally. To this end, CCME completed extensive stakeholder engagement and identified areas to support the development of this framework.

REPORTING ON IMPLEMENTATION

The implementation of the Pan-Canadian Framework is a collaborative effort and a shared responsibility of federal, provincial and territorial governments. A governance structure has been established to support intergovernmental coordination on Pan-Canadian Framework implementation and reporting. Nine federal-provincial-territorial Ministerial Tables are responsible for coordinating Pan-Canadian Framework actions that fall within their respective Ministerial portfolios, including Environment, Energy, Infrastructure, Transport, Forestry, Agriculture, Innovation, Emergency Management and Finance. Four Ministerial Tables (CCME, Energy, Innovation, and Finance) are mandated to provide strategic analysis and oversight for each of the Pan-Canadian Framework pillars. A new Federal-Provincial-Territorial Coordinating Committee of Experts has been established to develop the annual Synthesis Report to First Ministers that integrates Pan-Canadian Framework-related input from federal-provincial-territorial Ministerial Tables. The Intergovernmental Affairs Deputy Ministers plays a key role in finalizing and delivering this annual report to the First Ministers.

This first annual Synthesis Report to First Minsters focuses on tracking progress in establishing governance structures, mobilizing funding and initiating programs and regulations. The focus of subsequent reports will shift toward concrete results and outcomes to track collective national results and progress in implementing the Pan-Canadian Framework. In order to facilitate robust and coordinated reporting going forward, over the coming year federal, provincial, and territorial governments will work collaboratively through the Canadian Council of Ministers of the Environment to identify appropriate ways to track progress on the Pan-Canadian Framework. These efforts may be informed by other initiatives underway, including the Expert Panel on Climate Change Adaptation and Resilience Results, which will provide advice to the federal government on measuring progress on adaptation and climate resilience in March 2018, as well as the work of a federal-provincial-territorial working group currently undertaking consultation to advance the development of the clean technology data strategy. Future reports will also identify policy gaps, implementation challenges and opportunities and provide recommendations on how to address them.

ANALYSIS AND ADVICE

Governments have committed to engaging experts to ensure that actions taken are effective and that decision-making is informed by science and evidence. In the coming months, the Government of Canada will engage provinces and territories on options for expert engagement, as committed to under the Pan-Canadian Framework, to support analysis and the provision of advice to promote clean growth and address climate change in Canada.

REVIEW

Federal, provincial and territorial governments will work together to establish the approach to the review of carbon pricing, including expert assessment of stringency and effectiveness that compares carbon pricing systems

across Canada, which will be completed by early 2022 to provide certainty on the path forward. As an early deliverable to the interim review in 2020, work was initiated to examine approaches and best practices to address the competitiveness of emissions-intensive and trade-exposed sectors.

COMMITMENT TO CONTINUE TO ENGAGE AND PARTNER WITH INDIGENOUS PEOPLES

First Ministers directed federal, provincial, and territorial governments to work together to report on the implementation of the Pan-Canadian Framework, engaging with relevant ministerial tables, and with meaningful involvement of Indigenous Peoples. Federal, provincial, and territorial governments will continue to engage and partner with Indigenous Peoples as actions are implemented and progress is tracked. The Government of Canada is collaborating with First Nations, Inuit, and the Métis Nation to establish three distinctions-based senior bilateral tables based on recognition of rights, co-operation and partnership. These tables will provide a structured, collaborative approach for ongoing engagement with Indigenous Peoples in the implementation of the Pan-Canadian Framework and on broader clean growth and climate change priorities. This will help ensure that Indigenous Peoples are full and effective partners in advancing clean growth and addressing climate change.

7 LOOKING AHEAD

One of the objectives of reporting annually on Pan-Canadian Framework implementation is to facilitate an assessment of policy gaps and recommend further action in order to increase ambition over time. At this early stage of implementation, many programs, investments and regulations are still in the process of being designed and developed. Since assessing gaps first requires an evaluation of results and outcomes, this will be a feature of future reports, once data can be reported against indicators and attributed to Pan-Canadian Framework actions. In some cases, this may take time. For example, assessing the impact of policies on reducing GHG emissions will occur further in the future due to the lag between policy action and behaviour change, as well as the lag between actual emissions and the publication of emissions numbers.

PRICING CARBON POLLUTION

While most provinces and territories that do not currently have carbon pricing system in place have demonstrated a commitment to implement carbon pricing, some have not yet identified which carbon pricing system will be applied in their jurisdiction. This will be important to ensure that jurisdictions are in a position to have pricing systems take effect in 2018. Communicating program design details in a timely manner is also key to providing consumers and investors with the clarity needed to inform choices and support Pan-Canadian Framework goals of reducing GHG emissions while growing our economy.

Moving forward, work will continue towards implementing carbon pricing systems across Canada in 2018. As affirmed in the Vancouver Declaration and reiterated in the Pan-Canadian Framework, provinces and territories continue to have the flexibility to design their own policies to meet emissions-reduction targets, including carbon pricing, adapted to each province and territory's specific circumstances.

The federal government will also engage with provincial and territorial governments and stakeholders to ensure that emissions from commercial inter-provincial/territorial aviation could be properly covered.

Overall, as jurisdictions move forward with implementing carbon pricing systems, it will be beneficial to share lessons learned.

COMPLEMENTARY ACTIONS TO REDUCE EMISSIONS

It will be important to continue cross-jurisdiction collaboration as measures are developed and implemented. For example, on zero-emission vehicles, federal, provincial, and territorial governments are working together to

develop a national strategy. Developing policies together helps ensure new and existing policies are complementary. Federal, provincial, and territorial governments will work to identify additional opportunities for linking and aligning new and existing work across jurisdictions.

Key regulatory milestones over the coming year include publishing final regulations to phase out emissions from coal-fired electricity, for natural gas-fired electricity, to cut methane emissions from the oil and gas sector, and for heavy-duty vehicles, as well as draft regulations for the clean fuel standard. A range of other initiatives will be advanced over the coming year, including energy efficiency standards and related work for buildings, industrial energy efficiency programming, developing an approach to improve efficiency in the off-road sector, establishing technology funding programs, and finalizing investments in renewable energy, electricity transmission and smart grid projects. Work will also continue with negotiations under the Paris Agreement, including developing robust guidance under Article 6 for the use of international carbon markets

Federal, provincial, and territorial governments will continue to work together and discuss key Pan-Canadian Framework initiatives that require ongoing pan-Canadian collaboration, including on electricity interconnections, building codes, the ZEV strategy, and a range of investments. Federal, provincial, and territorial governments will also finalize the terms of $9.2 billion for green infrastructure (including support for electricity infrastructure, renewable energy, and other projects) and the Leadership Fund portion of the $2 billion Low Carbon Economy Fund.

The Government of Canada is working in partnership with the Assembly of First Nations (AFN), Inuit Tapiriit Kanatami (ITK), and the Métis National Council (MNC), to establish the three distinctions-based senior bilateral tables for ongoing engagement with First Nations, Inuit, and the Métis Nation in the implementation of the Pan-Canadian Framework and on broader clean growth and climate change priorities. In October, 2017, Canada and the AFN held the first bilateral meeting of their Joint Committee on Climate Action; Canada continues to work in partnership with ITK and MNC to establish their respective bilateral tables and plans to hold inaugural meetings with Inuit and the Métis Nation by the end of 2017.

ADAPTATION AND RESILIENCE

Over the coming year, efforts will continue to focus on launching new programs and operationalizing planned initiatives. Key milestones include the launch of the Canadian Centre for Climate Services and the Disaster Mitigation and Adaptation Fund, including identifying projects for the first round of funding, approval of integrated bilateral agreements with provinces and territories for infrastructure investments, and finalizing the Northern Adaptation Strategy. Efforts will continue to better understand and track the impacts of climate change on health and well-being and to develop innovative solutions to reduce these climate-related health impacts, as well as to support capacity building for Indigenous Peoples to address a wide range of climate change adaptation challenges.

It will be important to ensure that the Pan-Canadian Framework continues to draw on work from other existing federal-provincial-territorial working groups to link adaptation work that is ongoing and planned across each of the Ministerial tables.

Potential future collaborative work to advance adaptation and resilience across Canada could include:

- Identifying potential for integration of adaptation and GHG mitigation objectives;
- Looking at ways to increase the climate resilience of government institutions (e.g., sharing best practices, lessons learned, international examples);
- Developing guidance or sharing best practices and, information approaches for investments in resilient infrastructure, including natural infrastructure; and
- Working on climate change adaptation in coastal regions (e.g., developing a coastal adaptation strategy; sharing tools, information, approaches, best practices; compendium of tools).

Ministers of the Environment will continue to champion adaptation efforts within federal, provincial, and territorial governments, and engage all Ministers (e.g., health, relations with Indigenous Peoples, emergency management, infrastructure, local government, natural resources, forests, agriculture, fisheries, energy, economy and innovation) to take action to adapt and build resilience, as adaptation involves the mandates of these Ministerial tables. This includes encouraging all levels of government, businesses, communities and citizens to take action to identify climate change as a priority for urgent and sustained action to ensure that climate risks are being considered, and addressing those risks across sectors, jurisdictions and communities across Canada. By continuing to support and mobilize action broadly across all sectors and regions, federal, provincial, and territorial governments will work to increase Canadians' resiliency to the impacts of climate change now and in the future.

CLEAN TECHNOLOGY, INNOVATION AND JOBS

The Federal-Provincial-Territorial Working Group on Clean Growth has identified the following future opportunities to deepen engagement on clean technology innovation:

- Ensuring access to financing for smaller companies to mature and access larger scale funding later on will maximize and complement the suite of clean technology funding already available.
- Further deepen and strengthen governments' alignment efforts to fully realise the opportunities created through support for Canada's clean technology sector.
- Continue work to better understand and overcome the barriers faced by Indigenous Peoples in accessing the full suite of federal funding.
- Additional collaboration to support the development of the skills necessary to successfully integrate a low-carbon economy. This includes general innovation and entrepreneurial skills, such as increasing the awareness and knowledge by youth of the business skills required to lead a tech start-up.
- Continue work to help Indigenous Peoples overcome barriers in accessing the full suite of federal funding.
- Explore creation of a regulatory sandbox – a safe space for businesses to test innovative products in a live environment without being fully subject to regulations.

Innovation Ministers will continue collaborative efforts to ensure an effective implementation of clean technology investments and initiatives that aligns with program and policies to maximize clean technology outcomes. As implementation advances, there will be additional opportunities for the Federal-Provincial-Territorial Working Group on Clean Growth to utilize its influence and expertise in playing a pivotal role to advance Canada's clean-technology landscape.

Over the coming year, work will continue across a number of areas, including implementing federal funding support for clean technology research, and the development, demonstration and adoption of clean technology in Canada's natural resources sectors through the selection of projects. Innovation initiatives will continue to be developed and rolled out and Sustainable Development Technology Canada will continue to select and announce projects. Provinces and territories will formalize partnerships with the federal government regarding the access to capital support as well as the Sustainable Development Technology Canada funding. The first round of challenges is planned for the new federal innovation procurement program. As well, the Federal-Provincial-Territorial Working Group on Clean Growth will continue to develop a procurement resource toolkit for municipalities, universities, school and hospitals to help them leverage existing green procurement initiatives or adopt similar practices. Work will also continue to support certification programs such as the ENERGY STAR program. To implement the Clean Growth Hub, a central office will be established to improve client service. As well, to support the clean technology data strategy work will include continuing consultations, deepening metrics and annual data reporting.

ANNEX I: STATUS OF ALL PAN-CANADIAN FRAMEWORK ACTIONS

PRICING CARBON POLLUTION

Canada	In 2017, Canada began the implementation of the pan-Canadian approach to pricing carbon pollution through the: • Release of the Government of Canada's Technical Paper on the Proposed Federal Carbon Pricing Backstop (May 18, 2017) for public comment; • Publication of additional guidance on the pan-Canadian carbon pollution pricing benchmark (as follow up to the announcement on October 3, 2016); • Provision of ongoing technical support to provinces and territories currently without carbon pricing systems such as modelling expertise, as requested; • Completion of a study with the territories to find solutions that address their unique circumstances, including high living expenses and of high cost of energy, challenges with food security, and their emerging economies; • Ongoing discussions with Indigenous Peoples to find solutions that address their unique circumstances; and • Initiation of a review to assess approaches and best practices to address the competitiveness of emissions-intensive trade-exposed sectors.
British Columbia	British Columbia's carbon tax, in place since 2008 and currently set at $30/tonne CO_2e, will increase by $5/tonne per year starting April 1, 2018. BC will take measures to expand carbon pricing to include fugitive emissions and emissions from slash-pile burning.
Alberta	Alberta extended the reach of its carbon pricing system this year to increase coverage across the economy. Starting on January 1, 2017 a carbon levy applies to transportation and heating fuels that emit GHG emissions when combusted. The levy rate is currently $20/tonne and will increase to $30/tonne in 2018. Alberta's current Specified Gas Emitters Regulation will be also replaced in 2018 by an Output Based Allocation framework for large industrial emitters, which will regulate GHG emissions while protecting the competitiveness of Alberta's trade exposed industries.
Manitoba	Manitoba has proceeded with developing a Made-in-Manitoba Climate and Green Plan that includes carbon pricing and specific priorities for addressing climate change, jobs, nature, and water.
Ontario	Ontario launched a cap-and-trade program in January 2017 and held its first auction of emission allowances in March. Ontario's cap-and-trade regulations cover about 82% of emissions (including industry, electricity and fuels, excluding marine and aviation).
Québec	In 2013, the Québec government replaced its carbon levy with a cap-and-trade system that has been linked with California's system since 2014. During the first two years of the program, industrial emitters and electricity producers were covered. In 2015, the Québec government terminated its carbon levy, when fuel distributers became covered by the cap-and-trade system. By the end of 2017, Québec and California will have held a total of thirteen joint auctions of GHG emission allowances. Ontario is also committed to join, and by 2018, the three governments are expected to have completed the necessary steps to link their cap-and-trade systems.
Nova Scotia	In November 2016, Nova Scotia announced an Agreement-in-Principle with the federal government on clean growth and climate change. In March of 2017, Nova Scotia conducted stakeholder consultation on cap-and-trade design options, and continues to draft quantification,

	reporting and verification (QRV) regulations. Nova Scotia plans to develop cap-and-trade program regulations and launch the QRV program in 2018.
New Brunswick	New Brunswick committed to introducing a carbon pricing mechanism during the current session of the legislature.
Prince Edward Island	Prince Edward Island is evaluating carbon pricing mechanisms to determine which approach best meets provincial objectives. Feedback was solicited during provincial pre-budget consultations. A mechanism will be chosen in late 2017. Required legislation and program delivery tools will be prepared in 2018. The carbon pricing mechanism will be launched in 2018.
Newfoundland and Labrador	Newfoundland and Labrador began operationalising its *Management of Greenhouse Gas Act*, which provides a legislative framework to reduce GHG emissions from large industrial emitters. Newfoundland and Labrador's GHG Reporting Regulations were gazetted on March 7, 2017 and Administrative Penalty regulations on July 28, 2017. Large industrial facilities were required to report their emissions to the provincial government on June 1, 2017 and provide third party verifications by September 1, 2017. Moving forward, Newfoundland and Labrador will continue to develop further regulations to support the full implementation of the Act.
Yukon	Yukon has been working closely with the federal government to study the impacts of carbon pricing on its residents, businesses and industry, and how best to recycle revenue.
Northwest Territories	The Northwest Territories released a Carbon Pricing Discussion Paper in July 2017 and held public consultations from July to September 15, 2017. The Government of the Northwest Territories will use the input received to inform the design of a carbon pricing system and determine revenue recycling options. Once the carbon pricing system is determined, the next steps will include necessary legislation.
Nunavut	Nunavut has been working closely with the federal government to study the impacts of carbon pricing on Nunavummiut. The study will support Nunavut's policy decisions on carbon pricing and is expected to be complete in fall 2017.

MITIGATION

ELECTRICITY

Increasing renewable and non-emitting energy sources	The federal government published draft regulations for the accelerated **phase-out of coal-fired power** by 2030, as well as natural gas fired electricity performance standards. Negotiations are ongoing between federal, provincial, and territorial governments on equivalency. Most provinces and territories advanced plans to **increase clean electricity production**, including new efficiency regulations in British Columbia, new programs and a renewable energy auction launched in Alberta, a new energy policy and action

	plan in Québec that aim to expand renewable energy, an enhanced net metering framework in Ontario, new plans to expand renewable energy in Saskatchewan, a new small-scale renewables program in New Brunswick, upgraded transmission lines to support wind power in Prince Edward Island, continued expansion of hydro in Newfoundland and Labrador and Manitoba, new efficiency investments and renewable energy R&D advancements in Nova Scotia, new work on power generation policy in Yukon, a new net metering policy in Nunavut, and a new draft energy strategy in Northwest Territories. Good progress is being made on negotiating the terms of $9.2 billion in federal transfers to provinces and territories for green infrastructure, a portion of which will support clean electricity infrastructure. The federal government committed $200 million to deploy emerging renewable energy technologies; a call for proposals will occur in late 2017 and the program will start in April 2018.
Connecting clean power with places that need it	Federal infrastructure funding will support **grid infrastructure.** Provinces and territories will receive $9.2 billion through Integrated Bilateral Agreements for priority green infrastructure projects, which could include better-connected electricity systems. At least $5 billion will be available through the Canada Infrastructure Bank over the next 11 years for green revenue generating infrastructure projects that are in the public interest, including those that reduce greenhouse gas emissions, deliver clean air and safe water systems, and promote renewable power. Under the Government of Canada's Regional Electricity Cooperation and Strategic Infrastructure Initiative (RECSI), federal, provincial, and territorial governments and utilities are collaborating on regional studies to identify the most promising electricity infrastructure projects with the potential to achieve significant emissions reductions. Key projects include natural gas sector electrification in British Columbia, new non-emitting generation projects, and enhancement of transmission interties between jurisdictions. Ontario and Québec, and Manitoba and Saskatchewan, respectively, have signed agreements to increase energy transmission across provincial boundaries.
Modernizing electricity systems	The federal government committed $100 million for **smart grid** deployment and demonstration; a call for proposals will occur in late 2017 and the program will start in April 2018. Alberta is studying how to integrate more small-scale generation into its grid. Ontario is looking to expand its Smart Grid Fund and is also supporting microgrid demonstration projects. New Brunswick is looking to deploy advanced metering infrastructure. Prince Edward Island is studying how to maximize benefits from renewable generation, and Atlantic Provinces announced the Atlantic Clean Energy Partnership to enhance electricity infrastructure in the region.
Reducing reliance on diesel working with Indigenous Peoples and northern and remote communities	The federal government has allocated $220 million to fund projects that help reduce reliance on diesel; a call for proposals will occur in late 2017 and the program will start in April 2018. One of the challenges launched under the Clean Technology Stream of the Impact Canada Initiative will also support northern and remote communities to reduce their reliance on diesel.

	The provincial-territorial Pan-Canadian Task Force on Reducing Diesel Use on Off-Grid Communities met to develop a common vision for remote energy use and recommended federal, provincial, and territorial collaboration to find common solutions. Alberta announced $35 million to fund community and solar energy projects in Indigenous communities. British Columbia is working with remote and off-grid communities to assess options. Manitoba is expanding geothermal and biomass in northern communities. Northwest Territories is setting a target for reducing diesel use and is working to expand solar and wind in remote communities. Nunavut is actively exploring opportunities for improving the energy efficiency of its diesel generators. Yukon is supporting its First Nations and communities improve energy efficiency and expand renewable energy.
BUILT ENVIRONMENT	
Making new buildings more energy efficient	The federal government allocated $99 million to develop **net-zero energy ready** building codes, including funding for RD&D projects. A number of provinces took steps to increase energy efficiency requirements for new buildings, including a new voluntary step-code in British Columbia, building code updates in Manitoba, adoption of the National Building Code by Prince Edward Island, and proposed coordination on codes and standards with British Columbia and California, Oregon and Washington. Alberta is undertaking a feasibility study to ensure that sustainable technologies are applied to new-build and retrofit projects to reduce emissions.
Retrofitting existing buildings	Most jurisdictions are **supporting energy efficiency** through policies, programs or incentives. The governments of the Atlantic provinces announced the Atlantic Clean Energy Partnership, which will promote energy efficiency, among other priorities. New Brunswick continues to invest in energy efficiency programs, including a retrofit program for low-income earners. Newfoundland and Labrador allocated $5 million for a Home Energy Savings Program and $4 million for a Home Energy Efficiency Loan Program. Prince Edward Island continues to offer programs to help Islanders reduce energy consumption, and is developing a district heating system. Manitoba is establishing a new crown corporation to deliver energy efficiency programs and services. The federal government allocated $82.5 million to support energy **benchmarking, standards and labelling**. Federal, provincial, and territorial governments are working together to develop a national framework and online tool for measuring and sharing energy use data. Ontario has introduced new reporting and benchmarking rules for energy and water. It is also working to build programs to help hospitals, universities and colleges retrofit their facilities with energy efficient and renewable energy technologies. British Columbia plans to implement new performance standards to meet new energy efficiency targets. Federal, provincial, and territorial governments are working together to identify building retrofit projects as part of the $2 billion Low Carbon Economy Fund. Governments are also finalizing details of $9.2 billion in federal transfers as part of the Investing in Canada Infrastructure Program, a portion of which will support efforts to increase energy efficiency in new and existing public infrastructure. Ontario announced a partnership with the Integrated Electricity System Operator's Conservation Fund for an assortment of projects, from fuel cells for space and water heating to net-zero energy buildings. Ontario is also supporting the MaRS Discovery District in piloting the Green Building Certifications Inc.'s Investor Confidence Project

	protocols in the province and exploring how they can be adapted for the Canadian Market. Alberta is investing in government-owned building refits to increase the efficiency of mechanical and electrical equipment. Where feasible, solar panels are also being installed as part of the refit project to reduce demand on the electricity grid. The province also has approved a solar program for schools across the province. Québec extended the RénoVert tax credit for an additional year, which will support household investments in the environmentally friendly home renovation sector and, as a result, increase demand for products and construction materials that meet recognized environmental and energy efficiency standards.
Improving energy efficiency for appliances and equipment	Federal, provincial, and territorial Energy and Mines Ministers released a strategy that sets **energy performance goals** for windows, space and water heating. Roadmaps will be developed for these goals in 2018. The federal government amended the *Energy Efficiency Regulations*, updating **efficiency standards** for 20 product categories, with further updates for 17 more products expected in early 2018. British Columbia took regulatory action to allow utilities to increase incentives for high-efficiency equipment and also took steps to enhance standards for gas fireplaces and heat pumps. Ontario continued to update and set new efficiency standards for products. Québec tightened its energy efficiency standards for appliances. The federal government allocated $6 million annually to support energy efficiency standards and the ENERGY STAR program for equipment.
Supporting building codes and energy efficient housing in Indigenous communities	The Government of Canada is planning a joint research project with the National Research Council to define guidelines to support **sustainable housing** in First Nations communities. Northwest Territories has committed over $2.7 million to provide energy efficiency programs and services to residents, businesses and communities.
TRANSPORTATION	
Setting standards and improving efficiency	The federal government continues to implement **emissions standards for new light- and heavy-duty vehicles**. In March 2017, draft amended regulations to implement emissions standards for heavy-duty vehicles were published in the *Canada Gazette, Part I*. The federal government has made significant investments for transportation initiatives, such as in fuel-efficient tire standards, freight best practices, and the National Trade Corridors Fund (NTCF) for infrastructure to help reduce congestion and idling. Canada is also taking action to improve efficiency and support fuel switching in the rail, aviation and marine sectors. This includes voluntary action plans to reduce GHG emissions and increase engine efficiency in the rail and aviation sectors. Canada is also working to reduce aviation-related emissions by implementing the internationally agreed carbon dioxide (CO_2) standard, working with international partners to finalize a revised non-volatile particulate matter (nvPM) standard, and to finalize and implement the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Jurisdictions are taking collective action on a path forward for establishing retrofit requirements for heavy-duty vehicles. This year the federal government initiated preliminary research and analysis, which builds upon existing provincial and

territorial efforts in their own jurisdictions. Federal, provincial, and territorial governments are developing a work plan to consider options for encouraging greater use of fuel saving devices. In 2017, New Brunswick's climate change action plan recognized heavy-duty vehicle retrofits as an action that will contribute to emission reductions, while Ontario and Québec announced funding for programs that support the adoption of fuel-saving devices.

A number of jurisdictions also took action to improve efficiency and support fuel switching in the rail and marine sectors.

Many other governments continued their work to reduce emissions from the transportation sector, including Québec's regulation respecting GHG emissions for motor vehicles, British Columbia's 10-year transportation plan and increased provincial funding for transit, and Prince Edward Island's Enhancing Active Transportation Networks program and Sustainable Transportation Committee.

Putting more zero-emission vehicles on the road

A Federal-Provincial-Territorial Steering Group is overseeing the development of a Canada-wide **strategy for zero-emission vehicles** (ZEVs). Together, governments have established several collaborative expert groups to provide advice on the development of a national strategy, expected to be finalized in 2018.

British Columbia launched clean energy vehicles (CEV) charging infrastructure subsidy programs and a procurement program for electric vehicle (EV) charging stations. BC is also enabling utilities to invest up to $330 million to provide incentives for natural gas use in the heavy duty vehicle sector, including renewable natural gas and refueling infrastructure in the marine sector. Alberta is looking into barriers to ZEV adoption. Manitoba is expanding the use of electric buses. Ontario continues to expand its suite of ZEV incentive, information and pilot programs. Québec tabled draft regulations for a ZEV standard and has set a target to put 100 000 ZEVs on the road by 2020. New Brunswick installed 15 new EV charging stations and 10 fast chargers. Prince Edward Island purchased the first EV for its government fleet, and is in the midst of an education campaign on the benefits of EVs. Newfoundland and Labrador released a Vehicle Efficiency and Cost Calculator to inform consumers about the costs and benefits associated with purchasing a fuel efficient and alternatively powered vehicle.

The federal government allocated $62.5 million in Budget 2016 (Phase 1) and $120 million in Budget 2017 (Phase 2) to support the deployment, demonstration, and development of enabling codes and standards for recharging and alternative fuels infrastructure. By March 2018, Phase 1 will be complete, resulting in the construction of over 100 new EV fast chargers, seven natural gas stations, and three hydrogen stations. It will also result in the demonstration of more than 200 next-generation EV charging stations in real-world settings, including public transit, passenger and heavy-duty vehicles, multi-unit residential building and wireless charging applications.

Shifting from higher- to lower-emitting modes and investing in infrastructure

Québec, Ontario, New Brunswick, Alberta, and British Columbia developed action plans that incorporate commitments and/or funding for infrastructure improvements that facilitate efficient multi-modal transportation or ensure transportation infrastructure is resilient and adapted to the effects of the changing climate. Nova Scotia, New Brunswick, Manitoba, and Québec have signaled their commitment to electrifying transportation.

British Columbia developed a 10-year transportation plan and increased funding for transit; Alberta committed $1.53 billion to the Calgary Green Line LRT, an additional

	$176 million for a total of $600 million to support the Southeast Valley Line LRT in Edmonton as well as $305 million for municipal transit; and Prince Edward Island is expanding its sustainable and active transportation infrastructure. The Public Transit Infrastructure Fund is investing $3.4 billion over three years to upgrade and improve public transit systems across Canada including investments in energy efficient buses, increasing accessibility of public transit, integrating alternative and active transportation into public transit systems and repairing transit infrastructure. Through the $2 billion, 11 year National Trade Corridors Fund, Canada is also supporting investments in transportation infrastructure – including ports, airports, railways, border crossings – to address urgent capacity constraints and freight bottlenecks to strengthen the efficiency and reliability of trade-related transportation systems in Canada.
Using cleaner fuels	The federal government published a discussion paper to inform development of a **clean fuel standard** to reduce emissions from fuels used in transportation, buildings and industry. British Columbia amended the *Greenhouse Gas Reduction (Clean Energy) Regulation* to support the use of renewable natural gas. Québec is requiring 2% renewable content in diesel and 5% in gasoline. Saskatchewan, New Brunswick, and Ontario are investigating renewable and low carbon fuel options.
INDUSTRY	
Reducing methane and HFC emissions	The federal government published draft **regulations to reduce methane emissions** from the oil and gas sector, based on close collaboration with provincial and territorial governments on the approach. The federal government is also working to publish final regulations on the phase down of hydrofluorocarbons (HFCs). Provinces and territories have also been active to reduce methane and HFCs. British Columbia has a pilot for a Clean Infrastructure Royalty Credit Program and the Greenhouse Gas Industrial Reporting and Control Act for liquid natural gas emissions intensity benchmarks. Alberta is using emission offset protocols to reduce industrial methane emissions, including the Quantification Protocol for Greenhouse Gas Emission Reductions from Pneumatic Devices. Saskatchewan, Newfoundland and Labrador and Québec continue their work in this area.
Improving industrial energy efficiency	New Brunswick is expanding its industrial energy efficiency programming. Northwest Territories is assessing the potential for industrial efficiency improvements, and Newfoundland and Labrador is setting performance standards to reduce GHG emissions from large industry. The federal government launched the new ENERGY STAR for Industry certification and challenge programs, and is working with British Columbia to provide joint incentives to implement ISO 50001 energy management systems. The Commission for Environmental Cooperation (CEC) North American Energy Management Pilot equipped industrial companies across North America with resources to reduce energy consumption and GHG emissions.
Investing in technology	The federal government is investing $50 million in oil and gas sector technologies to reduce GHG emissions, including a $10 million investment in the Alberta Carbon Conversion Technology Centre. British Columbia launched a Technology Strategy, $100 million Tech Fund and a $27 million Cement Low Carbon Fuel Program, and made a commitment to establish an

	Emerging Economy Task Force and Innovation Commission. Québec invested in technology and innovation in several sectors including electric vehicles and green technology.

FORESTRY, AGRICULTURE AND WASTE

Increasing stored carbon	The $2 billion Low Carbon Economy Fund announced by the federal government supports new and expanded provincial and territorial actions to reduce GHG emissions, including through enhanced carbon storage in forests and agricultural soils. Approved provincial/territorial projects under the Low Carbon Economy Leadership Fund will launch in 2018. British Columbia announced a $150 million investment to enhance the carbon storage potential of its public forests, and is also developing new tools for environmental farm management. Northwest Territories has launched a Forest Industry Development Strategy to provide guidance on further developing the forest industry. New Brunswick, Québec, British Columbia, and Alberta have been combatting pest epidemics through early intervention and monitoring, reforestation, and ongoing treatment of affected areas to limit the damage to forest health. The Québec –Ontario Cooperation for Agri-Food Research Program is funding collaborative research on climate change impacts on soil health, food processing and food safety in order to develop best practices and adaptation and mitigation strategies.
Increasing the use of wood for construction	Federal, provincial, and territorial governments have made significant investments to increase the use of wood in construction. The federal government is investing $39.8 million over four years in the Green Construction through Wood Program. Ontario is investing $4.8 million for the Mass Timber Building Project and Québec is investing $11 million for the Wood Building Demonstration Program. A number of jurisdictions including Alberta, British Columbia, New Brunswick, and Québec have Wood Charters or wood use policies that encourage the use of wood products in construction, and some provinces are increasing the use of wood and other low-carbon renewable materials in municipal and government-funded buildings. Some jurisdictions are also allocating funds for research, demonstration projects, and training programs on wood construction.
Generating bioenergy and bio products	Action has been taken to bring cleaner bioenergy to communities that rely on fossil fuels, including through federal investments of $55 million in support of bioheating as part of the federal Promoting Clean Energy for Remote Communities program. Ontario's Wood Stove Exchange Program will offer financial incentives to homeowners in northern, rural, and Indigenous communities to replace existing wood heating or fossil fuel appliances with new, high-efficiency, modern wood heating systems. The Whitesand First Nation in Ontario aims to replace diesel power generation by constructing a combined heat and power cogeneration plant and a wood pellet plant. Jurisdictions are also investing to increase Canada's competitiveness in bioproducts and biofuels. Yukon invested $187,000 to support biomass development and New Brunswick launched a Forest Biomass Policy for companies to harvest biomass for either energy production or fuel production. Québec is leading the transformation and modernization of its forest products industry through, for example, its Wood

	Innovation Work Plan with over $86 million in government investments by 2022. Alberta has supported bioenergy and biofuels through investment in the Bioenergy Producer Program and development of emission offset protocols including the Biofuel Production and Usage Protocol and Energy Generation from Biomass Protocol.
Advancing innovation in GHG-efficient management practices in forestry and agriculture	The federal government has committed to invest in research and innovation to support the agriculture industry, including $70 million for science and innovation with a focus on climate change and soil and water conservation, $25 million for adoption of clean technology by Canadian agricultural producers, $27 million for innovative projects to help farmers mitigate GHG emissions and $2.35 million to attract youth to green jobs within the agriculture and agri-food sector. The federal government is also helping evaluate potential climate impacts on regional agricultural production to build risk mitigation tools and support adaptation. The Canadian Council of Forest Ministers released a Forest Bioeconomy Framework for Canada to promote the use of forest biomass for advanced bioproducts and advance innovation in the forest sector. Provincial and territorial governments have also taken action within their jurisdictions. Alberta has a number of agriculture programs to address climate change, Saskatchewan continues to invest in research and development, New Brunswick is researching carbon sequestration in agriculture, Nova Scotia is hiring an on-farm energy auditor to reduce agriculture's carbon footprint, and Manitoba , Ontario, and Québec are developing a range of new programming related to agriculture and climate change. Yukon and Northwest Territories are assessing the impacts of climate change on agriculture and traditional foods in the north.
GOVERNMENT LEADERSHIP	
Setting ambitious targets	The federal government has committed to reducing its GHG emissions by 40% by 2030, or earlier. Public reporting in July 2017 showed that federal GHG emissions decreased by 19% between 2005-06 and 2014-15. In 2017, Canada released its GHG emissions inventory of federal operations online and will continue to report on progress. Other actions from jurisdictions include Manitoba's work to benchmark building energy and water use for government buildings, Newfoundland and Labrador's greening government action plan, Nova Scotia's policies to reduce emissions, Nunavut's internal assessments of operations, Saskatchewan's certification of green buildings and New Brunswick's update of its green building policy.
Cutting emissions from government buildings and fleets	The federal government is investing in actions to reduce its emissions, including $1 billion to modernize heating and cooling plants in the National Capital Region, and $29.7 million for technical support to help federal organizations cut GHG emissions from their buildings and fleets. British Columbia continues its commitment to be a carbon neutral government and has also launched a *Wood First* Act, a LEED Gold equivalent requirement for public sector buildings, and an EV charging infrastructure procurement initiative. New Brunswick is retrofitting public buildings and purchasing plug-in hybrid vehicles for its fleet. Québec plans to reduce the petroleum fuel consumption of the governmental and para-governmental light vehicle fleet. Under Newfoundland and Labrador's Build Better Buildings Policy, new buildings strive for

	LEED Silver status. Northwest Territories has set a target for all new government buildings to exceed the National Energy Code for Buildings by 10%.
Scaling up clean procurement	The Government of Canada allocated $29.9 million to offer services supporting greening government operations. Québec has committed to developing a tool to guide public procurement. As well, it has developed a plan for integrating eco-responsible performance criteria into public bidding processes, in order to increase the volume of environmentally responsible acquisitions in the public service.

INTERNATIONAL LEADERSHIP

Delivering on Canada's international climate finance commitments	Canada is taking an innovative approach to mobilizing private sector financing and partnering with multilateral development banks to help remove barriers to private investment. In 2017, Canada announced the $200 million second phase of the Canadian Climate Fund for the Private Sector in Asia, administered by the Asian Development Bank. In 2018, Canada will finalize and announce additional agreements with partners to deliver and implement Canada's climate finance commitment. It is expected that all agreements with partners will be finalized by the end of Fiscal Year 2020-21. Québec decided to respond directly to the appeal by the United Nations to increase the international funding of climate actions in developing countries by announcing climate cooperation measures totalling $25.5 million, mainly for Francophone countries that are most vulnerable to the impacts of climate change.
Acquiring internationally transferred mitigation outcomes	The International Mitigation Project Team completed work to assess opportunities and risks and to provide considerations to inform Canada's approach to internationally transferred mitigation outcomes (ITMOs). The International Mitigation Project Team report will be presented to Ministers of Environment at their 2017 meeting.
Engaging in trade and climate policy	This year, Canada co-sponsored a workshop on trade and climate change that was held on the margins of the World Trade Organization (WTO) Committee on Trade and Environment (CTE). The federal government continues to advance discussions on trade and climate change in the WTO, Organization for Economic Cooperation and Development (OECD), and other international organizations. Saskatchewan began work to investigate opportunities for offsets and ITMOs and to contribute to the development of Carbon Capture and Storage international standards. In June 2017, Canada's Feminist International Assistance Policy was launched, with Environment and Climate Action as a key area for action. The Policy recognizes that communities around the world, particularly the poorest and most vulnerable, are experiencing the destabilizing effects of climate change and reaffirms Canada's commitment to combatting climate change and its impacts. Canada is leading and partnering to advance international initiatives under the Clean Energy Ministerial related to women in clean energy, energy efficiency (in industry, buildings, and appliances), electric vehicles, and smart grids. In 2019 Canada will host the Clean Energy Ministerial/Mission Innovation for the first time. By hosting this ministerial event, Canada is positioning itself as a global leader on clean energy and innovation and showcasing Canadian clean energy solutions, providing business opportunities for Canadian clean energy companies.

ADAPTATION AND CLIMATE RESILIENCE

TRANSLATING SCIENTIFIC INFORMATION AND TRADITIONAL KNOWLEDGE INTO ACTION

Providing authoritative climate information	The federal government has announced funding and is working with partners to develop the Canadian Centre for Climate Services. The Centre will provide authoritative climate information, data and tools to support adaptation decision-making in Canada. Provinces and territories are advancing efforts to equip Canadians with the information they need, including future climate projections in British Columbia, LiDAR imaging data in New Brunswick, information and resources to support adaptation decision-making in Nunavut, regional climate modelling, monitoring, and updated Intensity Frequency and Duration Curves in Ontario, and climate-scenario research and services in Québec.
Building regional adaptation capacity and expertise	The federal government has announced funding and is consulting with stakeholders to develop the Building Regional Adaptation Capacity and Expertise program. Provinces and territories are collaborating to build capacity on a regional basis (e.g., Atlantic and western provinces). Québec provided $12.7 million over three years to the Ouranos Consortium to support multidisciplinary applied research projects on climate change impacts, vulnerabilities and the development of adaptation solutions Manitoba is providing $400,000 for the creation of the Prairie Climate Centre to develop climate data to inform decision-making and address climate impacts.

BUILDING CLIMATE RESILIENCE THROUGH INFRASTRUCTURE

Investing in infrastructure to build climate resilience	The federal government has launched the Investing in Canada Plan, which will provide $9.2 billion to provinces and territories through Integrated Bilateral Agreements, including projects supporting adaptation and resilience; and $2 billion through the Disaster Mitigation and Adaptation Fund. The federal government also launched the $16.35 million Transportation Assets Risk Assessment initiative to support those responsible for federal transportation infrastructure assets in identifying and better understanding the climate risks to their assets, and the potential adaptation solutions that could be employed to reduce them.
Developing climate-resilient codes and standards	The federal government, in delivering the Climate Resilient Buildings and Core Public Infrastructure Project, is undertaking work to integrate climate resilience into new buildings and core public infrastructure, and is facilitating development of updated guidance and standards to support climate-resilient infrastructure decision-making. British Columbia, Alberta, New Brunswick, Northwest Territories, Nova Scotia, Nunavut, and Ontario are supporting the federal government in the development of climate-resilient codes and standards, including building codes and guidelines

	that support climate-resilient infrastructure decision-making within their jurisdictions.
PROTECTING AND IMPROVING HUMAN HEALTH AND WELL-BEING	
Addressing climate change-related health risks	With partners and stakeholders, the federal government has taken concrete actions to prevent and prepare for heat-related illnesses. This includes the launch of a National Heat Health Community of Practice with key stakeholders, formally tabled Federal Framework on Lyme Disease and action plan. The government continues to increase capacity to prevent, identify, and manage climate-driven infectious diseases as well as engage with key partners to support health research, monitoring and surveillance. In addition, the first call for proposals under the Infectious Diseases and Climate Change Fund was issued to address the impact of climate change on human health by building and increasing access to infectious disease-based evidence, education and awareness. Provinces and territories are advancing efforts to protect human health. Québec, New Brunswick and Manitoba are taking steps towards developing surveillance and warning systems for heat. Québec has supported research to link the problem of zoonosis in the context of climate change and made efforts towards providing health authorities with tools to track adaptation to climate change. Yukon is monitoring the health impacts of extreme weather events and wildfires and Nunavut has increased awareness of the human risks associated with climate change in Nunavut.
Supporting healthy Indigenous Peoples	The federal government has supported community-based health adaptation with First Nations, Inuit and the Métis Nation.
SUPPORTING PARTICULARLY VULNERABLE REGIONS	
Investing in resilient infrastructure to protect vulnerable regions	The federal government continues to engage Northern jurisdictions and stakeholders under the Northern Transportation Adaptation Initiative, and announced funding under the Investing in Canada Plan that will build resilience in vulnerable regions (i.e., Indigenous, coastal and northern communities). Provinces and territories are advancing efforts to improve flood protection, including Manitoba's commitment to invest $1 billion annually to improve flood protection, Yukon's monitoring and surveillance of transportation infrastructure, Nova Scotia vulnerability assessments to inform dyke maintenance, and New Brunswick's adaptation planning. Newfoundland and Labrador, Prince Edward Island, Northwest Territories, and Nunavut are supporting climate-resilient infrastructure in vulnerable regions.
Building climate resilience in the North	The federal government is working with provinces, territories, northern governments and Indigenous organizations to finalize the Northern Adaptation Strategy and continues to make investments through the Climate Change Preparedness in the North program to strengthen northern adaptation capacities. The federal government renewed the Northern Transportation Adaptation Initiative to continue to build northern capacity and support the research and development of new tools and technologies for adapting northern transportation to climate change. Ontario and Quebec, are improving the resilience of northern infrastructure, including transportation infrastructure, to the impacts of climate change. Manitoba is facilitating the sharing of information and local knowledge in northern

	communities. Québec is monitoring ice movements along Nunavik coast and supporting projects to improve the resiliency of transportation infrastructure. The Northwest Territories is supporting adaptation planning in the North.
Supporting community-based monitoring by Indigenous Peoples	The federal government launched a new program to support community-based monitoring and the pairing of Indigenous Knowledge and western science. Provinces and territories are working in close collaboration with Indigenous Peoples to support community-based monitoring and the sharing of Indigenous Knowledge. This has included efforts to support intergenerational dialogue with students in Nunavik in Québec, monitoring of traditionally harvested foods in Saskatchewan, building technical capacities of Indigenous Peoples in Ontario, and supporting community-based monitoring activities in Alberta, the Northwest Territories, and Nunavut.
Supporting adaptation in coastal regions	The federal government will continue to provide scientific information and data to inform and improve predictions of climate change in vulnerable coastal regions through the renewal of the Aquatic Climate Change Adaptation Services Program. Provinces and territories are supporting efforts to identify and assess the vulnerability of coastal communities and infrastructure. British Columbia is updating flood plain maps and developing a Flood Hazard Strategy. Newfoundland and Labrador and Yukon are improving monitoring capabilities in coastal regions in. New Brunswick, Northwest Territories, Prince Edward Island, Nunavut, and Québec are completing vulnerability assessments and/or supporting adaptation planning in coastal communities.
REDUCING CLIMATE-RELATED HAZARDS AND DISASTER RISKS	
Investing in infrastructure to reduce disaster risks	The federal government, through the Investing in Canada Plan, will prioritize investments in infrastructure to reduce disaster risks and protect communities and continues to support provinces and territories through the National Disaster Mitigation Program including British Columbia and Newfoundland and Labrador. Alberta and Ontario are advancing efforts to support municipalities and communities in building long-term resilience to flooding and drought events. Quebec is developing a framework (Cadre pour la prévention des sinistres 2013-2020) that helps municipalities prevent disasters, coastal erosion and landslides through adaptation planning. Nunavut is sharing best practices. Manitoba, New Brunswick, and Northwest Territories are prioritizing investments in infrastructure.
Advancing efforts to protect against floods	Under the National Disaster Mitigation Program, the federal government has advanced efforts to protect against floods, including the development and modernization of flood maps, the publication of the Floodplain Mapping Guidelines, and support for Alberta, Manitoba, New Brunswick, Prince Edward Island, and Saskatchewan in assessing flood risks. Alberta, British Columbia, Manitoba, Saskatchewan, Nova Scotia, Newfoundland and Labrador, the Northwest Territories, and Québec have supported flood risk mapping, adaptation planning, monitoring and flood risk assessments to better understand, address and reduce flooding risks within their jurisdictions.
Supporting adaptation by Indigenous Peoples	The federal government continues to support the integration of climate information into decision-making processes through the First Nation Adapt

program. The program works with First Nation communities to identify region-specific priorities, impacts and opportunities for climate change projects. The program prioritizes First Nation communities most impacted by climate change related to sea level rise, flooding, forest fires, and winter road failures. The program was expanded in 2017 to include a focus on floodplain mapping on-reserve.

Some provinces and territories are supporting Indigenous Peoples by supporting community-based monitoring of sea-ice in Nunavut, assessing the political processes and governmental structures for adaptation in Nunavik in Québec, and by providing training for community climate change champions in Yukon.

CLEAN TECHNOLOGY, INNOVATION AND JOBS

BUILDING EARLY-STAGE INNOVATION

Supporting early-stage technology development

Federal, provincial, and territorial governments are supporting new approaches to early-stage technology development to advance research in areas that have the potential to substantially reduce GHG emissions and other pollutants. For example, the new Clean Growth Hub announced through Budget 2017 supports several clean technology actions across all stages of the innovation spectrum, including at the early-stage technology development.

The Federal-Provincial-Territorial Working Group on Clean Growth is working to identify breakthrough technology missions or challenge areas of new programs such as the clean technology stream of Impact Canada and other similar initiatives.

Provinces and territories are also taking action to build early-stage innovation. Examples include Ontario's newly launched challenge to innovators to propose solutions to help Ontario industry reduce GHG emissions and its new program to fund costs of large-scale transformative research. Québec has a new Research and Innovation Strategy (SQRI) – Oser innover [Dare to Innovate] and is working under the Energy Policy's 2017-2020 action plan to achieve a 25% increase in the number of technological innovation projects, funded between now and 2020. In May 2017, Québec also launched a $3 million call for proposals to create a research chair for the development of green technologies.

Mission-oriented research and development

The Government of Canada allocated $200 million in Budget 2017 to support clean technology research and the development, demonstration and adoption of clean technology in Canada's natural resources sectors. The Federal-Provincial-Territorial Working Group on Clean Growth is working to identify breakthrough technology missions or challenge areas of new programs and to map existing assets, programs and infrastructure supporting mission-oriented RD&D. Alberta and the federal government are collaborating through the Alberta-Canada Collaboration on Clean Energy Research and Technology and the Energy Innovation Program to support new and clean technologies. Ontario recently launched the Low Carbon Innovation Fund (LCIF) to help researchers, entrepreneurs and companies create and commercialize new, globally competitive, low-carbon technologies that will help Ontario meet its

	GHG emissions reductions targets. Alberta recently announced the Oil Sands Innovation challenge to reduce GHG emissions and improve cost competitiveness of bitumen production and announced funding commitments to 12 innovative methane-reducing technology projects.

ACCELERATING COMMERCIALIZATION AND GROWTH

Access to government programs	The new federal government Clean Growth Hub is working to improve client service and clean technology policy coordination across Canada. The Federal-Provincial-Territorial Working Group on Clean Growth is developing a new national network of clean technology incubators and accelerators. Québec and the federal government partnered to offer services, namely through Entreprises Québec and Infos Entrepreneurs, to assist entrepreneurs.
Increasing support to advance and commercialize innovative technologies	Federal, provincial, and territorial governments are working together to enable access to capital for clean technology businesses to bring their products and services to market. The federal government is supporting access to capital to help Canada's clean technology firms grow and expand through growth and project financing, funding projects across Canada to develop and demonstrate new clean technologies that promote sustainable development, and through a suite of innovation initiatives in Budget 2017 to support Canada's innovators. Alberta is working with Business Development Bank of Canada on how to draft letters of intent, British Columbia and the federal government recently announced a partnership between the Innovative Clean Energy (ICE) Fund and the SD Tech Fund™ to support the development of pre-commercial clean energy projects and technologies, and Québec is working with SDTC to support innovation in energy and in GHG emissions reduction in Québec as well as with Ecofuel Accelerator to support start-up companies working in the clean technology sector, and Nova Scotia and the Atlantic Canada Opportunities Agency (ACOA) announced new support for Nova Scotia start-ups in the ocean and clean technology sectors. Québec also announced a new innovation assistance program which will cover development and commercialization of new clean technologies. Ontario is currently developing a CleanTech Strategy and has made significant investments into its cleantech network. New work was recently announced by firms in Alberta, British Columbia, and Ontario working to advance technology solutions for reducing GHG emissions and increasing energy efficiency in Canada's oil sands. Ontario's Cleantech Equity Fund initiative is a $55 million investment that will focus on providing venture capital to high potential, innovative Ontario-based cleantech businesses.
Strengthening support for skills development and business leadership	Federal, provincial, and territorial governments are working together to strengthen skills development and business-leadership capacity through a number of efforts. The Federal-Provincial-Territorial Working Group on Clean Growth is collaborating with other working groups to share information to support talent, skills training and development opportunities. Saskatchewan engaged the tech sector on skills shortages in ICT, Québec developed a labour market strategy addressing clean tech sector needs, Ontario invested to help Indigenous communities address climate change and support economic growth and the adoption of clean technology solutions, and British Columbia held job fairs in Silicon Valley to attract high-skills talent.

Expedite immigration of highly qualified personnel	The Government of Canada's new Global Skills Strategy gives employers a faster and more predictable process for attracting top talent and new skills to Canada and the new Global Talent Stream allows companies access to a new streamlined hiring process. Québec is offering tax breaks for foreign researchers and experts to help businesses find employees with high-level skills needed to carry out their innovation projects.
Promoting exports of clean technology goods and services	The Government of Canada is working on an international business development strategy to support Canadian clean technology firms to become world leaders and capitalize on global market opportunities. The Federal-Provincial-Territorial Working Group on Clean Growth is working to establish a Pan-Canadian approach for clean technology export support to increase Canadian clean technology exports and growth of globally competitive Canadian clean technology producers, and is also working to develop Canada's clean technology value proposition for foreign-direct investment targets. The federal and provincial governments are investing to provide Atlantic firms with training, intelligence and market analysis and in-market engagement activities through the Atlantic Trade and Investment Growth Strategy. British Columbia is collaborating with Washington State to establish the Cascadia Innovation Corridor to help grow the high-tech, life sciences, clean technology, and data analytics industries across borders. Québec launched the 2016-2020 Québec Export Strategy which identifies priority actions to support the clean technology sector and the International Climate Cooperation Program to support the transfer, adoption and deployment of clean technologies to developing Francophone countries vulnerable to the impacts of climate change.
Standards-setting	The Government of Canada is supporting the Standards Council of Canada (SCC) to develop a strategy to support Canadian clean technology entrepreneurs through the use of standards to accelerate commercialization, time to market and secure access to a wider range of market. Ontario recently released a Cleantech Strategy to streamline industry standards.
FOSTERING ADOPTION	
Leading by example: greening government operations	Work is underway by federal, provincial, and territorial governments to develop action plans for greening government operations and encourage utilities and municipalities and other public sector entities to adopt clean technologies to lead by example. The federal government launched Innovative Solutions Canada (TBC), a new innovation procurement program to enhance early stage clean technology R&D and clean technology innovation. The Federal-Provincial-Territorial Working Group on Clean Growth is working to promote innovation and better connect clean technology producers to opportunities. The working group is also developing a procurement resource toolkit for municipalities, universities, schools and hospitals to help them leverage existing green procurement initiatives or adopt similar practices. The Atlantic Energy Gateway (AEG) is working to contribute to the development of Atlantic Canada's clean energy resources by identifying the opportunities and assisting in evaluating the advantages of the region's substantial and diversified renewable energy potential for wind, tidal, biomass/biofuels, and hydro. Most provinces and territories are taking action to reduce emissions by greening government operations. British Columbia implemented the Carbon Neutral

	Government program and created a procurement concierge service to connect commercial-ready vendors to government buyers. British Columbia is working on policy options for increasing the use of low carbon building materials in new LEED certified public sector facilities. Saskatchewan is undertaking research and experiments into drought resistant cropping and the vulnerability of forests to climate change. Manitoba has a GHG emissions summary of government buildings and new guidelines for construction waste diversion and building air-leakage testing. Ontario is supporting technology-driven small and medium-sized enterprises (SMEs) and the procurement and adoption of Ontario Clean technologies. Québec developed a plan for integrating eco-responsible performance criteria into public bidding processes and tools to promote public procurement of clean technologies. Québec is also investing in renewable energies for heating for schools and investments to improve energy efficiency. New Brunswick has a green procurement policy. Newfoundland and Labrador is working to accredit public buildings under the LEED sustainable buildings rating system. Prince Edward Island is striving to reach 100% renewable energy production within the province by 2050 and is reviewing 20 potential Innovative Energy Projects. Northwest Territories is promoting energy efficiency retrofits and biomass heating systems in government buildings, and Nunavut is studying potential options to green government operations.
Supporting Indigenous Peoples and northern and remote communities to adopt and adapt clean technologies	The Government of Canada and Ontario are working together to fund a new biomass and wood processing facility for Whitesand First Nation that will provide clean energy and jobs. The Government of Alberta is supporting Alberta Indigenous communities or Indigenous organizations to install solar photovoltaic systems on facilities owned by the community or organization. Manitoba co-hosted a Pan-Canadian Summit on Reducing Diesel in Remote Communities to identify options to improve access to diesel alternatives in Northern, remote and Indigenous communities. Québec has multiple initiatives underway, including a pilot project for energy recovery of residual materials in northern areas and the Residual Forest Biomass Program to promote the use of biomass instead of fossil fuels and announced the creation of a fund dedicated to promote the use of biomass in the north to replace fossil fuels. The province also committed to forming an advisory council for Aboriginal communities to improve consultation on energy issues. Nunavut continues to explore options that reduce dependence on fossil fuels for all of its remote communities.
Consumer and industry adoption	The Government of Canada is working to promote consumer and industry adoption of clean technology through the development and release of 10 new and/or updated ENERGY STAR® technical specifications, and adding electric vehicle chargers and smart thermostats to the program for the first time. Regulations were amended in fall 2017, updating or introducing new standards for multiple product categories. Ontario recently announced the Green Ontario Fund, a not-for-profit provincial agency that will deliver programs and rebates to help reduce energy costs in homes and businesses. The new Energy Efficiency Alberta established by the Alberta Government has launched a number of energy efficiency programs to generate energy savings across residential and commercial sectors. Québec is also investing in several programs that promote energy efficiency and GHG reductions across various sectors of the economy, including EcoPerformance and Programme d'aide Écocamionnage.

STRENGTHENING COLLABORATION AND METRICS FOR SUCCESS

Enhance alignment between federal, provincial, and territorial actions	The federal government is launching an online Clean Growth Collaboration Community to support Canadian clean technology innovators by facilitating interactions with the federal, provincial and territorial programs and services. The Federal-Provincial-Territorial Working Group on Clean Growth developed a Pan-Canadian vision statement on clean technology and clean growth that commits to improved program and policy collaboration and coordination across jurisdictions and institutions. Québec is reviewing its financial support programs for business and innovation to harmonize and simplify its programming and is working with Treasury Board of Canada Secretariat to identify avenues for collaboration in the review of federal innovation programs.
Establishing a clean technology data strategy	The federal government has allocated $14.5 million to develop a clean technology data strategy and in 2017, consultations with PTs, industry and other stakeholders were conducted via a Federal-Provincial-Territorial Working Group. Québec and Ontario are working together with Statistics Canada and the Subcommittee on the Federal Clean Tech Data Strategy to identify issues related to the definition of the cleantech sector.

CROSS-CUTTING

Canada	The Government of Canada is advancing meaningful engagement with First Nations, Inuit, and the Métis Nation during the Pan-Canadian Framework's implementation, including through three distinctions-based bilateral tables. As such, the tables provide opportunities for ongoing engagement with Indigenous Peoples in the implementation of the Pan-Canadian Framework and on broader climate change priorities. In April 2017, Natural Resources Canada launched a national dialogue, Generation Energy, which invited Canadians to share their ideas and participate in building a vision for Canada's energy future through online participation, in-person panels and workshops. The feedback received will help to define Canada's energy future for the next generation, as Canada develops an energy policy direction to complement the work being done by the provinces and territories. In October 2017, in Winnipeg, Manitoba, national and international stakeholders gathered for the Generation Energy Forum to discuss how Canada is preparing for the reliable, affordable, low-carbon energy economy of the future.
Alberta	Alberta continues to make progress on the implementation its Climate Leadership Plan.[4] The Climate Leadership Plan is a made-in-Alberta strategy to reduce carbon emissions while diversifying the economy, creating jobs and protecting the province's health and environment. The Plan was created to mitigate GHG emissions and to transition to a lower carbon economy. Alberta's Climate Leadership Plan includes a commitment to reinvest revenues from the carbon levy into Alberta's economy, including standing up of Energy Efficiency Alberta, a new public agency launched in 2017 that helps Albertans increase the energy efficiency of their homes, businesses, and communities.

[4] https://www.alberta.ca/climate-leadership-plan.aspx

Ontario	Ontario is implementing its Climate Change Action Plan.[5] The plan outlines the key actions the government is taking to combat climate change, create good jobs in clean tech and construction, increase consumer choice, and generate opportunities for investment in Ontario. In August 2017, Ontario also launched the Green Ontario Fund, a non-profit provincial agency with planned funding of $2.4 billion over the next 4 years funded through proceeds from the province's carbon market. The fund is tasked with reducing GHG pollution in buildings and industry to help meet Ontario's emission reduction targets.
Manitoba	Manitoba is establishing a new stand-alone Crown corporation—Efficiency Manitoba—to deliver energy efficiency programs and services in Manitoba.
Prince Edward Island	Prince Edward Island has developed a 10-year Energy Strategy to reduce energy use, establish cleaner and locally produced energy sources and moderate future energy price increases.[6] The Strategy is guided by three principles: lowering GHG emissions, cost-effectiveness, and creating local economic opportunities and will be implemented over the next 10 years. Prince Edward Island is in the process of developing a new Climate Change Action Plan on Mitigation and Adaptation. This plan will include actions designed to reduce GHG emissions, enhance carbon sequestration, and adapt to a changing climate. The Climate Change Action Plan on Mitigation is expected to be released this fall and implemented over the coming years.
New Brunswick	New Brunswick is implementing its new comprehensive Climate Change Action Plan – Transitioning to a Low-Carbon Economy[7], which commits the province to stronger action in both GHG emission reductions and in building resilience to the impacts of a changing climate.
Nova Scotia	Nova Scotia continues to build on the work outlined in its Climate Change Action Plan[8] by further reducing its GHG emissions and adapting to the changing environment.
Newfoundland and Labrador	Newfoundland and Labrador has committed to developing a new Climate Change Action Plan and has undertaken public consultations to inform next steps.
Yukon	Yukon is in the first stages of planning a new integrated strategy for energy, climate change and green economy in partnership with Yukon First Nations and municipalities. The plan is expected to be released in 2019.
Northwest Territories	Northwest Territories committed over $2.7 million in 2017 to the Arctic Energy Alliance (AEA) to provide energy efficiency programs and services to residents, businesses, and communities.
Québec	Québec is implementing its 2013-2020 Climate Change Action plan.[9] The plan outlines the government's priorities and actions in the fight against climate change.

[5] https://www.ontario.ca/page/climate-change-action-plan
[6] http://www.peiec.ca/uploads/6/6/6/4/66648535/pei_energy_strategy_march2017_web.pdf
[7] http://www2.gnb.ca/content/gnb/en/departments/elg.html
[8] https://climatechange.novascotia.ca/sites/default/files/uploads/ccap.pdf
[9] http://www.mddelcc.gouv.qc.ca/changements/plan_action/pacc2020.pdf

	Québec is also modernizing its Environment Quality Act. The new provisions of the act will take into consideration GHG emissions as well as reduction and adaptation measures for all new projects requiring an environmental assessment.[10] Québec created the Transition énergétique Québec (TEQ) in 2017 to support, stimulate, and promote the energy transition, innovation, and efficiency, and to coordinate the implementation of all the programs and actions necessary to achieve Québec's energy targets. Québec's Research and Innovation Strategy[11] will contribute to the development of economic solutions.
Atlantic Provinces	The Atlantic Clean Energy Partnership was launched in 2017 to identify potential enhancements to electricity generation and transmission, to promote energy efficiency, and to support clean energy technologies.

[10] http://www.mddelcc.gouv.qc.ca/lqe/autorisations/fiches/changements-climatiques.pdf

[11] https://www.economie.gouv.qc.ca/objectifs/informer/recherche-et-innovation/strategie-Québecoise-de-la-recherche-et-de-linnovation/

SCENARIO NOTE

Meeting between Minister of Infrastructure and Communities and Amalgamated Transit Union Canada

Date/Time:	Thursday, November 30, 2017, from 9:30 a.m. to 10:30 a.m.
Location:	Amalgamated Transit Union Local 279, 2212 Gladwind Cr., Unit C9, Ottawa
Subject:	Meeting with representatives from Amalgamated Transit Union (ATU) Canada and Transit Workers
Participants:	The Honourable Amarjeet Sohi, Minister of Infrastructure and Communities Mr. Paul Thorp, President of ATU Canada Full participant list can be found in **Annex A**

Departmental Objectives
This meeting will offer you an opportunity to communicate your views with respect to the safety of transit operators.

Stakeholder Objectives
It is expected that meeting attendees will wish to discuss assaults on transit drivers and the lack of enforcement of the law with respect to refurbishments to the drivers' workplaces, such as blind spots, shields, and seats.

Context/Overview
Established in 2015, Amalgamated Transit Union (ATU) Canada is the Canadian branch of the larger ATU, which is headquartered in the United States. The Union represents 30,000 members on wide ranging issues including legislation, political, educational, health and safety, cultural, and social welfare matters. You had an introductory meeting with Paul Thorp and Steve Bradshaw (President and Vice-Chair of ATU Canada, respectively) in February 2017.

Under the previous Government, Bill S-221, *An Act to amend the Criminal Code (assaults against public transit operators)* received royal assent in February 2015. This act amended the *Criminal Code* to require a court to consider the fact that the victim of an assault of a public transit operator to be an aggravating circumstance for the purposes of sentencing. Along with other organizations, ATU Canada was supportive of this bill, and the organization continues to promote awareness and prevention of transit operator assaults.

In an open letter posted on ATU Canada's website, the president of the association has stated that amending the *Criminal Code* according to Bill S-221 is not enough (this letter can be found in **Annex B**). In his view, structural changes to the buses (specifically, the bus operator workstation) need to be made in order to ensure that assaults do not happen in the first place. For example, following the death of one of its employees in February 2017, Winnipeg Transit is proposing a pilot project to test safety barriers for bus drivers.

Infrastructure Canada and Public Transit Safety
Safety improvements to public transit systems have been an eligible cost under a host of programs delivered by Infrastructure Canada. Since 2009, INFC has provided funding for a number of projects that improve safety and security in public transit systems. These projects have included the installation of security cameras on transit fleets and upgrades to existing safety features at transit facilities. However, it seems that the majority of funding has been provided to projects that improve the safety and security of customers, rather than operators.

Funding would be available for improvements to the quality and safety of existing and future transit systems under the Investing in Canada Plan. Projects that contribute to safety-related improvements for transit operators and workers could be eligible to receive funding, provided that the provincial or territorial governments have prioritized them.

Points to Register

- I appreciate the opportunity to meet with you all today.
- All Canadians should feel safe and secure in their working environments. As a former bus driver, I believe in the importance of keeping public frontline workers, including transit operators, safe. We should continue to work together to find ways to ensure that our bus drivers are as protected as possible from assaults.
- As you may already know, the Government of Canada will be supporting the next phase of ambitious public transit projects through investments of over $25 billion. The majority of this funding will be delivered through negotiated Integrated Bilateral Agreements with provinces and territories.
- This second phase of the Government's infrastructure investment program will be outcomes-based. We will support investments that achieve defined outcomes, and provinces and territories will have flexibility to determine how to achieve those outcomes.
- By that I mean that there would be an opportunity to fund transit safety-related infrastructure projects under the Government's infrastructure investment program. However, any project must be prioritized by the province or territory in order to be eligible to receive funding. I encourage you to reach out to your respective provincial/territorial governments to discuss potential projects that would ensure a safe working environment for transit operators and workers.
- We will continue to work closely with all of our partners and stakeholders to ensure that public transit dollars are invested in a way that makes the most sense for Canada's diverse communities.
- I understand that Winnipeg Transit has proposed a pilot project to test safety barriers for bus drivers. I would be interested to hear your views with regards to other areas of infrastructure where the safety of transit operators can be improved.

Annexes
Annex A – List of meeting attendees
Annex B – Open letter from Paul Thorp, President of ATU Canada

Annex A

Attendees for Meeting with Minister Sohi Thursday November 30 @ 10:00am Local 279 Union Hall

1. Neil McKinnon – Vice-President, ATU 583 (Calgary, AB)
[redacted]
3. Travis Oberg – Secretary to the Board, ATU Canada
4. Juanita Rainey – Recording Secretary, ATU 987 (Lethbridge, AB)
5. Cliff Piggott – Executive Board Member – Transportation – Arrow Road/Mount Dennis, ATU 113 (Toronto, ON)
6. Marvin Alfred – Executive Board Member – Transportation – Arrow Road/Mount Dennis, ATU 113 (Toronto, ON)
7. Frank Malta – Executive Board Member – Transportation – Wilson-Bus/Wilson-Subway, ATU 113 (Toronto, ON)
8. Scott Gordon – Executive Vice-Chair, ATU Canada
9. Clint Crabtree – Executive Board Member for Eastern Canada, ATU Canada
10. Brian Tansy – President, ATU 741 (London, ON)
11. Rob Llord – President, ATU 846 (St. Catharines, ON)
12. Sean Book – Executive Member – Transportation – ATU 846 (St. Catharines, ON)
13. Andrew Cleary – President Business Agent, ATU 1189 (Guelph, ON)
14. Moe Al-Khafajy – President, ATU 1415 (Toronto, ON)
15. John Zahreddine – Financial Treasurer, ATU 1573 (Brampton, ON)
16. Jack Jackson – President and Business Agent, ATU 1572 (Mississauga, ON)
[redacted]
18. Shawn Purcell – Interim President, ATU 1624 (Peterborough, ON)
[redacted]
20. Patty Furry – President, ATU 1633 (Welland, ON)
21. Paul Churchill – President, ATU 1462 (St. John's, NL)
22. Patricio Garcia – Representative, ATU 508 (Halifax, NS)
23. Robin West – International Vice President, ATU
24. Paul Thorp – President, ATU Canada

Amalgamated Transit Union Canada

Here they come again: it's the neighborhood tax collector. No, not a Revenue Canada agent with an audit in hand. They work in a safe environment in little cubicles in Ottawa, ON. Someone from the Provincial Department of Taxation? Nope. Again, comfortably tucked behind a computer screen in some Provincial Capital.

The only people who come through our neighborhoods -- every few minutes -- and collect hard earned money from working families are doing so while trying to safely steer 40,000 pound vehicles through traffic. They are our communities' transit bus operators, and the taxes that they collect are bus fares. For years, those fares have been going through the roof. Combine that with massive service cuts on our transit systems, and you have the ingredients for very angry passengers. Unfortunately, when some people are asked to pay more for inferior service, they take it out on the face of the system – the bus driver.

In the recent past, we have seen a dramatic increase in the level and intensity of senseless attacks on defenseless operators. Drivers have been punched, slapped, stabbed, shot, have had bodily fluids thrown upon them and on February 14, 2017 in Winnipeg, Manitoba gave their life when a passenger attacked and murdered the operator. They are confronting all of this while trying to safely steer their vehicles through traffic, protecting the lives of passengers, pedestrians, and other drivers who are seriously distracted by today's hand-held gadgets.

The impact on these individuals is clear. Broken eye sockets. Deep puncture wounds. The loss of certain bodily functions. And while broken bones heal with time, the emotional scars linger indefinitely. Ironically, many operators who got into this line of work in the first place due to their friendly nature now find themselves unable to interact well with people, especially strangers. Constantly looking over their shoulder in paranoia, many cannot come back to work. For women who are victims of unspeakable sexual assaults on the vehicles, life is of course never the same again.

Given Canada's role as one of the world's leading centres for transit vehicle manufacturing, we are in a unique position to enhance safety for the industry throughout our nation and the United States. Canada has three of North America's largest urban transit bus manufacturers, and together they supply nearly 70% of the entire North American market from their Canadian roots. Five transit employees are assaulted every day. Each year, more than 2,000 transit operators are assaulted, and 755 of these incidents occur on buses, putting passengers and other vehicles at risk. Thankfully, Bill S-221 is now law. Threatening or assaulting a transit operator could now result in more serious criminal charges and longer jail times. It is long overdue. However, our judicial system is failing us because more often than not the lawyers for these criminals plea bargain down their clients' charges to a slap on the wrist. Criminal penalties alone will not stop these heinous acts from reoccurring. The logical next step is structural changes to the buses – specifically the bus operator workstation – to ensure that these incidents don't happen in the first place. Train operators work in enclosed cabs. Since September 11, 2001, secure cockpits guard people who fly commercial airplanes. Yet, public transit "pilots" continue to be left vulnerable to vicious attacks.

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The time has come for our government and transit employers to stop putting a price on humanity. ATU Canada is demanding for a stop to these heinous assaults. Join us in demanding a change to the structural design of the transit operator workstation. Together we can keep everyone safe.

Paul Thorp
President
ATU Canada

SCENARIO NOTE

Meeting between the Minister of Infrastructure and Communities and Mr. Rick Hansen

Date/Time:	Wednesday, December 6, 2017, from 4:00 to 4:30 p.m.
Location:	427 Laurier Avenue West, 10th floor, Ottawa, Rm 10-009
Subject:	Meeting with Rick Hansen, Founder and CEO of the Rick Hansen Foundation
Participants:	The Honourable Amarjeet Sohi, Minister of Infrastructure and Communities Ms. Kelly Gillis, Deputy Minister, Infrastructure Canada Mr. Rick Hansen, CEO, Rick Hansen Foundation (biography in **Annex A**) Mr. Brad Brohman, Vice-president of government relations, Rick Hansen Foundation (biography in **Annex B**)

Departmental Objectives

The meeting provides an opportunity for you to receive an update from Mr. Hansen on his foundation's work to promote accessibility issues. It will also allow you to discuss developments on the accessibility file from the Government of Canada's perspective, including measures to improve the accessibility of federally-funded infrastructure.

Stakeholder Objectives

Mr. Hansen is seeking federal funding of $135 million, over five years, to develop the Rick Hansen Foundation Accessibility Certification, create an Accessibility Fund for 2,000 accessibility improvement grants, and sponsor awareness initiatives. Please refer to **Annex C** for a summary of his proposal, and **Annex D** for the full proposal.

Context

The Rick Hansen Foundation

The Foundation, based in Richmond, British Columbia, works to advance the rights of people with disabilities. One of their key initiatives is the Rick Hansen Foundation Accessibility Certification, a LEED-style rating system to certify the accessibility of buildings. The foundation also issues an Accessible Cities Award, which was awarded to Winnipeg, Richmond, and Edmonton, in May 2017, to recognize accessibility innovation. In spring 2017, the foundation received $9 million from the BC Government to pilot the Rick Hansen Foundation Accessibility Certification and an Accessibility Grants program.

Infrastructure Investments and Support for Accessibility

In Budget 2017, the Government of Canada recommitted to addressing and removing barriers to accessibility through several facets of the Investing in Canada Plan.

Integrated Bilateral Agreements

Currently, a key target for projects funded through the Integrated Bilateral Agreements is to ensure that 100% of federally-funded public-facing infrastructure meet the highest published applicable accessibility standard in a respective jurisdiction. This target will help create some public accountability for the accessibility of infrastructure projects as they will be reported publicly online once in force (after signing of the Integrated Bilateral Agreements).

Public transit investments funded through the agreements ($18.9B) will also contribute to improve accessibility and to enhance mobility options for the disabled. Public transit projects funded under the Integrated Bilateral Agreements will be tied to performance indicators to measure improvements to the accessibility of public transit, including ensuring transit fleets and stations are physically barrier free. Investments funded under the public transit stream could also support the rehabilitation of existing transit infrastructure to improve their accessibility.

Investments in social infrastructure, such as community, cultural and recreational infrastructure ($1.3B), are expected to improve social inclusion among vulnerable populations. Multipurpose facilities provide economies of scale to incorporate universal design factors for accessibility and other uses. Additionally, Rural and Northern Communities ($2.4B) investments include provisions to improve accessibility through the construction of modern accessible community centres.

Smart Cities Challenge

The Smart Cities Challenge is a $300 million investment to encourage cities and their most creative minds to adopt new and innovative approaches to city-building. It may be an opportunity for communities to showcase mobility and accessibility innovations and receive federal funding and support to develop a winning concept.

Investing in Canada Plan initiatives delivered by other federal departments

Other parts of the Investing in Canada Plan include the National Housing Strategy ($11.2B), led by the Canada Mortgage and Housing Corporation. The National Housing Strategy is expected to increase the accessibility of housing units with features to promote social inclusion (proximity to transit, services and supports, employment). The National Housing Co-Investment Fund will also require that accessibility standards be met for both new construction, repair and renewal with 20% of units required to meet accessibility standards or achieve universal design.

Furthermore, under the Investing in Canada Plan, the Enabling Accessibility Fund ($77M), operated through Employment and Social Development Canada, has provisions to enhance accessibility in communities, facilitate employment for persons with disabilities, and engage youth to identify ways to reduce barriers. The fund includes a Youth Innovation Component where applicants work with an eligible organization to identify a barrier in their community and work with them to submit the proposal and advance the project.

<u>Employment and Social Development Canada's Accessibility Legislation</u>

[redacted]

[redacted]

In August 2017, the Minister of Sport and Person with Disabilities met with Rick Hansen, and indicated that the Government would not be proceeding with the foundation's accessibility certification program because the legislation was still in development, but could consider working with the Foundation on expanding its Accessible Cities Awards program.

[redacted]

Points to Register

- I appreciate you taking the time to meet with me again.
- The Government is investing more than $180 billion under the Investing in Canada Plan.
- Through these long-term investments, the Government is taking action to support the development of a barrier-free environment, promoting greater accessibility in public-facing infrastructure, public transit and in housing construction and renovation and other social infrastructure investments.
- As you know, the Accessibility consultations report is out with many recommendations on how to develop an ambitious approach to address accessibility issues from a whole-of-government perspective.
- Accessibility legislation is currently under development at Employment Social Development Canada, under the auspices of my colleague, the Minister of Families, Children and Social Development, Yves Duclos, as well as Kent Hehr, Minister of Sport and Persons with Disabilities.
- What have been your successes with the certification process that you have developed?

Annexes

Annex A – Biography Rick Hansen

Annex B – Biography Brad Brohman

Annex C – Rick Hansen Foundation Federal Proposal Summary

Annex D – Making Canada Accessible: A proposal for the Government of Canada

Rick Hansen

The Rick Hansen Foundation

Rick Hansen is Founder and Chief Executive Officer of the Rick Hansen Foundation and a passionate advocate for people with disabilities in Canada and around the world. As well as being a celebrated Paralympic athlete, since 1985 Rick is known as the "Man in Motion," for his epic two-year wheelchair trip around the world to prove the potential of people with disabilities.

Rick has dedicated his life to creating a world that is accessible and inclusive for all by removing barriers for people with disabilities. The Rick Hansen Foundation aims to change attitudes, create accessible spaces and liberate the potential of people with disabilities.

Rick sustained a spinal cord injury at age 15 and was paralyzed from the waist down after a car accident. In 1976, Rick enrolled at the University of British Columbia, and became the first person with a disability to graduate with a degree in Physical Education.

Between 1979 and 1984, Rick turned his focus to track and field events, which included winning nineteen wheelchair marathons, the world title three times and nine gold medals at the 1982 Pan Am Games. He won two gold medals and one silver at the 1984 Paralympic Summer Games in Stoke Mandeville, and gold, silver and bronze at the 1980 Paralympic Summer Games in Arnhem, Holland. He also competed for Canada in the 1984 Olympic Games in wheelchair track, as an exhibition sport, and was the first person to break the two-hour time record in a wheelchair marathon.

Brad Brohman

The Rick Hansen Foundation

Brad Brohman is the Vice-President for Government Relations of the Rick Hansen Foundation. He has worked with the Rick Hansen Foundation since October 2015. Previously he has operated a management consultant firm (Brohman and Co.) specializing in Strategy, Governance (Board, Organizational), Performance Management, Government Relations, and Procurement. From 2001 to 2006, he was the Director of the Portfolio Performance and Integrity for the Canada Student Loans Program at what is now Employment Social Development Canada.

His education includes a L.L.B. from Queens University and a B.A. Political Science from the University of Victoria.

He has international experience as a volunteer with Habitat for Humanity.

Rick Hansen Foundation

Rick Hansen Foundation Federal Proposal Summary October 2017

Background

The Government of Canada is committed to introducing accessibility legislation and investing in social infrastructure to promote equality of opportunity and increase the inclusion and participation of Canadians with disabilities. The Rick Hansen Foundation (RHF) supports this vision, and is dedicated to making Canada fully accessible by 2050.

RHF proposes to complement pending legislation and infrastructure spending by working together with private and public sector partners to raise awareness of this critical issue, establish a means to consistently measure accessibility in the built environment, and incent tangible improvements.

What is the Funding Request?

That the Government of Canada fund a $135 million, five-year plan, comprised of three interdependent strategies:

- **Measure Access**: $22.5M to roll-out a national LEED-style rating and certification program, Rick Hansen Foundation Accessibility Certification™ (RHFAC), including training and accrediting assessors to conduct 10,000 RHFAC ratings across Canada.
- **Improve Access**: $100M to establish an Accessibility Fund for approximately 2,000 accessibility improvements grants of up to $50,000.
- **Increase Awareness**: $12.5M toward national initiatives to educate and engage Canadian communities, youth and corporations about the importance of accessibility, amplifying the federal government's National AccessAbility Week. Within this, a Rick Hansen Access Day is proposed.

Policy Leadership Actions

The Federal Government can accelerate adoption of RHFAC through the following actions:

- Mandate all federally owned buildings and regulated employers be rated, certified and labelled;
- Mandate all projects funded via Infrastructure Canada be certified; and
- Encourage development of incentives for developers and builders in exchange for meeting a higher standard of accessibility (RHFAC Gold).

Key Benefits for Government of Canada

- A national accessibility inventory of 10,000 buildings/sites across Canada.
- Establishment of a mechanism to incent accessibility improvements, resulting in tangible improvements to at least 2,000 buildings/sites.

- Leverage municipal, provincial, and private sector resources to accelerate accessibility initiatives.
- Deliver a made in Canada solution to measure and incent accessibility which complements building codes and provides a consistent rating methodology – enabling national comparability.

Why is Accessibility Important?

- Accessibility is a fundamental barrier for people with disabilities. One in seven Canadian adults currently identify as having a disability. There are now more Canadians aged 65 and over than 15 and younger. With this number projected to increase to as high as one in five by 2036, the time to act is now.
- The case for making Canada more accessible is not only an issue of human rights and equality but it makes good business sense. More than 400,000 people with disabilities have the potential and willingness to work but are not employed; almost half of these potential workers are post-secondary graduates.
- Canadians care about accessibility, and believe that the Government of Canada should lead the way in making our nation accessible. A 2016 Angus Reid Institute study found:
    - 92% believe accessibility is a human right, not a privilege
    - 88% think Canada should be a world leader in ensuring universal access to public places
    - 86% believe a LEED-style program to rate building accessibility would be worthwhile

What is RHF Accessibility Certification™ (RHFAC)?

- RHFAC is a LEED-style rating system to measure the accessibility of buildings/sites and promote adoption of Universal Design principles. It is the first program of its kind to:
    - **Measure the level of meaningful access of buildings**. RHFAC complements building codes by rating the entire facility from a holistic user perspective with a numeric rating scale;
    - **Professionally train individuals**, including those with disabilities, to gain valuable skills, conduct ratings and become accredited accessibility assessors; and
    - **Recognize an organization's commitment to accessibility** through formal certification and building labelling.
- Once rated, buildings may be certified as 'RHF Accessibility Certified' or 'RHF Accessibility Certified Gold,' and can be listed on the RHFAC Registry hosted by the CSA Group. Certification and labelling publicly showcase building owner's commitment to accessibility in a similar way that LEED rated buildings showcase their commitment to sustainability.
- RHFAC has been endorsed by the Government of BC, through $9M funding to launch and incentivize ratings and upgrades, offering approximately 1,100 complimentary ratings in BC until March 2019. Once rated, BC organizations may qualify to apply for up to $20,000 in funding for accessibility improvements.

Milestones To Date

- RHF undertook extensive consultations in Vancouver, Toronto, Ottawa, and Halifax. Participants included public and private sector stakeholders and disability organizations. Input informed the content of the program and the roll-out approach. An industry advisory committee was established from this process.
- In 2016, a BC pilot was funded in part by the BC government. RHF hired people with disabilities to conduct accessibility assessments among a variety of building types. Learning from this was applied to the development of the RHFAC rating system and the training curriculum.
- In spring 2017, RHFAC received $9M from the BC government to develop and roll out the program province-wide. $5M was allocated toward program development and $4M to create an Accessibility Grants Program. Activities to date include:
    - The inaugural RHFAC training course was delivered in partnership with Vancouver Community College
    - 12 RHFAC Professionals have been trained and are now conducting ratings;
    - The BC Accessibility Grants Program is offering up to $20k for accessibility upgrades identified through ratings.
- CSA Group is hosting an online registry of rated and certified buildings, administering labelling, and overseeing exams for RHFAC Professional designation.
- Research related to accessibility and people with disabilities was undertaken in partnership with the Angus Reid Institute in 2015 and 2016, guiding target markets and relevant messaging.
- Research projects by the Conference Board of Canada reviewed the competitive landscape and determined the economic value of making buildings accessible. More research is proposed.

Rick Hansen Foundation

MAKING CANADA ACCESSIBLE:
A Proposal for the Government of Canada

October 2017

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1. EXECUTIVE SUMMARY

1. Executive Summary

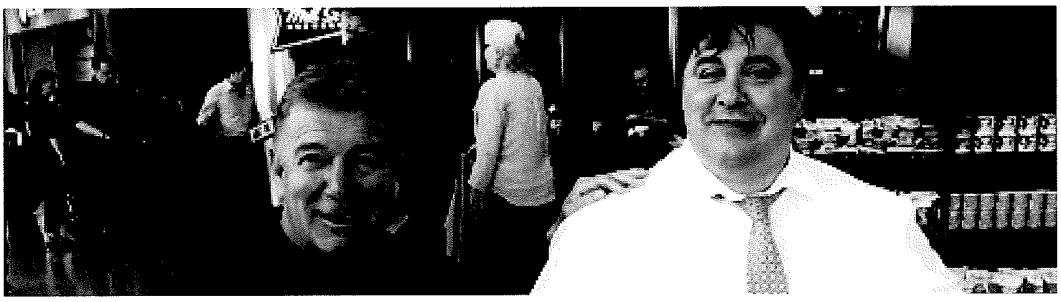
One in seven Canadian adults currently identify as having a disability. For the first time ever in our country, there are now more people aged 65 and over than aged 15 and younger. An aging population means more people in Canada will have disabilities which affect their mobility, vision, and hearing. With this number projected to increase to as high as one in five by 2036, the time to act is now.

The Government of Canada is committed to introducing accessibility legislation to promote equality of opportunity and increase the inclusion and participation of Canadians with disabilities. The Rick Hansen Foundation (RHF) supports this vision, and is dedicated to making Canada fully accessible by 2050. We propose to complement pending legislation by working together with private and public sector partners across the country to implement a comprehensive solution to raise awareness of this critical issue, establish a means to consistently measure accessibility in the built environment, and leverage resources to incent tangible improvements.

With the Government of Canada's significant investment in infrastructure planned over the next decade and beyond, there is a once-in-a-generation opportunity to embed principles of Universal Design into the built environment as a prerequisite for an accessible society.

When we remove barriers in the built environment, we are creating a country where all Canadians have a real and fair chance at success. An accessible built environment accommodates everyone – small children, parents with strollers, older adults and seniors, and people with temporary and permanent disabilities – and is inclusive of people's needs across their lifespan. Making our public spaces –our parks, museums, recreational centres, communities – universally accessible unleashes our collective economic and social power, creating a Canada that we can all be proud of.

This important priority was reinforced by some 6,000 individuals and 90 organizations that participated in Canada's largest-ever consultation on



disability issues in 2016-2017, led by Minister Carla Qualtrough. Participants felt that new accessibility legislation should lead to more consistent experiences of accessibility across Canada, including a national benchmark applied to all areas under control of the federal government.

Rick Hansen is a role model and champion to millions of Canadians of all abilities. Rick and RHF have been at the forefront of the battle to remove barriers for people with disabilities for over 30 years. A catalyst for transformational social change, we develop and deliver programs that increase awareness, change attitudes, and improve the quality of life for people with disabilities. RHF is a trusted partner of government, communities, business leaders, and advocacy groups. A reliable steward of funding, we have raised more than $359 million thanks to the generous support of partners and donors including the Government of Canada. We remain a strong and vibrant brand in Canada. Our key strength is our ability to engage all levels of government, create public-private partnerships that leverage funds, and generate positive public profile for the investments made. We have a unique ability to motivate and inspire industry, communities, and individuals to think and act differently.

Rick and RHF are fully committed to putting the power of our brand, resources, and partner networks together to contribute to the successful implementation of the Government of Canada's accessibility legislation and to raise the public profile of the government's significant investment in social infrastructure. We want to bolster the federal government's vision to build a Canada that is fully accessible and inclusive for all, and help showcase those values to Canada and the world.

To achieve these goals, RHF is proposing three interdependent strategies to support federal legislation over the next five years:

- **Measure Access:** Provide funding of $22.5-million to support the national roll-out of a LEED-style professional rating and certification program, Rick Hansen Foundation Accessibility Certification™ (RHFAC), by underwriting the cost of 10,000 RHFAC ratings across Canada. Funding will also enable research into the feasibility of future certification modules for key sectors like accessible transportation systems.

- **Improve Access:** Fund the creation of a $100 million Accessibility Fund, providing approximately 2,000 grants of up to $50,000 for community-based accessibility infrastructure improvement projects identified through RHFAC ratings.

- **Increase Awareness:** Provide funding of $12.5-million over five years toward national initiatives designed to educate and engage Canadian communities, youth and corporations about the importance of promoting accessibility and celebrating progress. This effort will centre on amplifying the federal government's National AccessAbility Week and set the stage for the national adoption of legislative and complementary programmatic solutions. Funding will also enable ongoing research to: measure progress, evaluate industry incentives, and build a stronger economic business case for accessibility. In addition, we will explore the application of advanced technologies to improve the effectiveness of infrastructure planning.

To support the Government of Canada's commitment to building an inclusive Canada, the proposed initiatives will deliver:

- A national inventory of 10,000 rated buildings, identifying and showcasing best practices which will allow Canada to establish a national (and eventually global) system for measuring accessibility;

- Accelerated adoption of Universal Design in the built environment through the provision of approximately 2,000 grants and other incentives;
- Recruitment, training, and employment of Canadians to become accessibility professionals, including those with disabilities who are currently underrepresented in the workplace;
- A mechanism to support and ensure government social infrastructure spending addresses the needs of people with disabilities the aging population, and the communities in which they live;
- Understanding of how new technologies can link innovation with infrastructure, and improve the livability of our cities;
- Feasibility assessment of accessibility rating modules that enable future certification of integrated transportation systems;
- Collaboration among thought leaders, persons with disabilities, service organizations, industry, Indigenous communities and others to remove barriers and drive transformational change together;
- Increased national awareness, understanding, and support for the importance of accessibility in the built environment for people with disabilities, and all Canadians; and
- A solid foundation among industry, different levels of government, and communities for successful implementation of pending accessibility legislation.

This social innovation requires both a "whole of government" approach as well as a national call to action to break through and truly transform Canada into the inclusive country we all want. Supporting and driving the important global issue of accessibility will secure and celebrate Canada's leadership position on the international stage, building a world where nobody gets left behind.

2. ACCESSIBILITY: CANADA AT ITS BEST

Canadians care about accessibility

One in seven Canadian adults currently identify as having a disability. This number is projected to increase to as high as one in five by 2036, due in part to our aging Boomer population (Statistics Canada Survey, 2012). For the first time ever in our country, there are now more people aged 65 and over than aged 15 and younger. Whether disability is caused by birth, an accident or injury, an illness, or the natural effects of aging, anyone can be affected at any time. Accessibility is a fundamental barrier for people with disabilities which affects their mobility, vision, and hearing.

Canadians care about accessibility, and believe that the Government of Canada should lead the way in making our nation accessible for people of all abilities. A 2016 Angus Reid Institute study found that:

- 92% believe accessibility is a human right, not a privilege
- 88% said Canada should be a world leader in ensuring universal access to public places
- 86% said a LEED-style program to rate building accessibility would be worthwhile

This important priority was reinforced by some 6,000 individuals and 90 organizations that participated in Canada's largest-ever consultation on disability issues in 2016-2017 led by Minister Qualtrough. Participants felt that new accessibility legislation should lead to more consistent experiences of accessibility across Canada including a national system, which should be applied to all areas under control of the federal government.

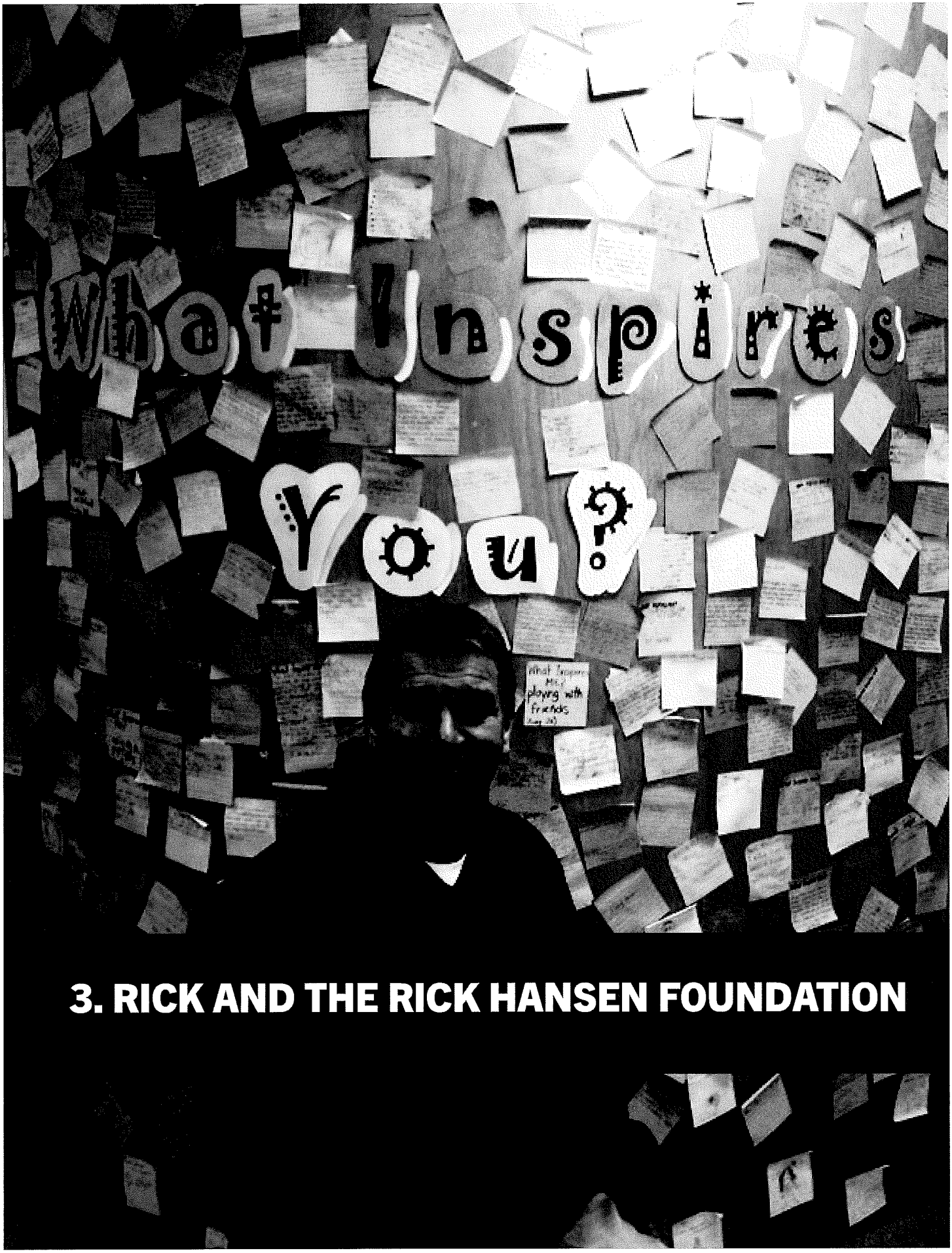
The case for making Canada more accessible is compelling on many fronts. It is not only an issue of human rights and equality but it makes good business and social sense. More than 400,000 people with disabilities have the potential and willingness to work but are not employed, and almost half of these potential workers are post-secondary graduates (Statistics Canada Survey on Disability, 2012).

According to the Conference Board of Canada,

"By 2030, Canadians with accessibility challenges will spend nearly $242 billion annually...and account for 16.1% of the total consumer market"

"Businesses should take note...there is market demand that is currently going unmet due to accessibility barriers"

Rick Hansen and the Rick Hansen Foundation are committed to making Canada fully accessible by 2050. We support both the Government of Canada's vision and Minister Hehr's important national legislative effort to eliminate systemic barriers and deliver equality to all Canadians living with disabilities.



3. RICK AND THE RICK HANSEN FOUNDATION

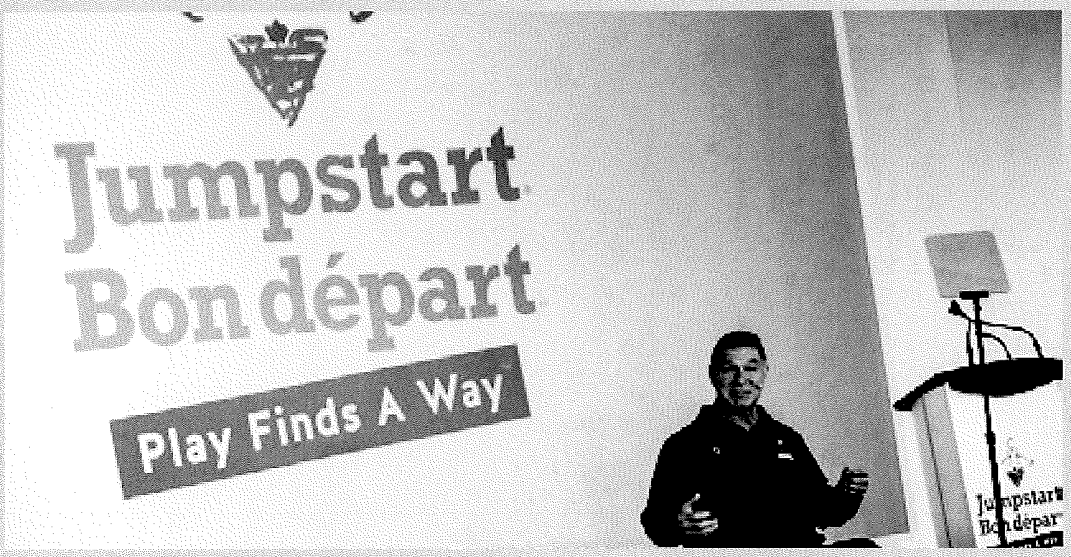
A lifetime of breaking down barriers

Rick Hansen is a Canadian icon who has dedicated his life to creating a world that is accessible and inclusive for all. A catalyst for social change, he has been at the forefront of the battle to remove barriers for people with disabilities for over 30 years.

As the Founder & CEO of the Rick Hansen Foundation (RHF), Rick and his team have made transformational change in raising awareness and removing barriers for people with disabilities. RHF has been a trusted partner and reliable steward of funding, having raised more than $359 million thanks to the generous support of partners including the Government of Canada. We develop and deliver programs that increase awareness, change attitudes, and improve the quality of life for people with disabilities. The Blusson Spinal Cord Centre and the Rick Hansen Institute are two examples of our ability to bring together groups and resources from government, the private sector and the community in support of a common goal. As a result, we now have a global network of scientists and researchers working together to accelerate progress towards a cure for paralysis after spinal cord injury.

Rick and RHF remain a strong and vibrant brand in Canada. Our key strength is an ability to engage all levels of government, create public-private partnerships that leverage funds, and generate positive public profile for the investments made. We have a unique ability to motivate and inspire industry, communities, and individuals to think and act differently. Canadian Tire Corporation (CTC), in support of the

Jumpstart Foundation, recently announced $50 million in funding over five years to help give Canadian kids with disabilities access to sport and play. CTC President and CEO Stephen Wetmore recognized Rick for his role in inspiring this movement.



"Our discussions with Rick moved and challenged us to think more about accessibility, leading to our $50 million investment toward kids with disabilities through Jumpstart. He is an inspiring and driving force..."

– Stephen Wetmore, President and CEO, Canadian Tire Corporation

RHF is now positioned to apply this strength to removing barriers in the built environment. The federal government can benefit from the public-profile, successful programs and innovative leadership of Rick Hansen and RHF to bring all Canadians together to capitalize on the economic and social power of people with disabilities, their extended families, and their communities.

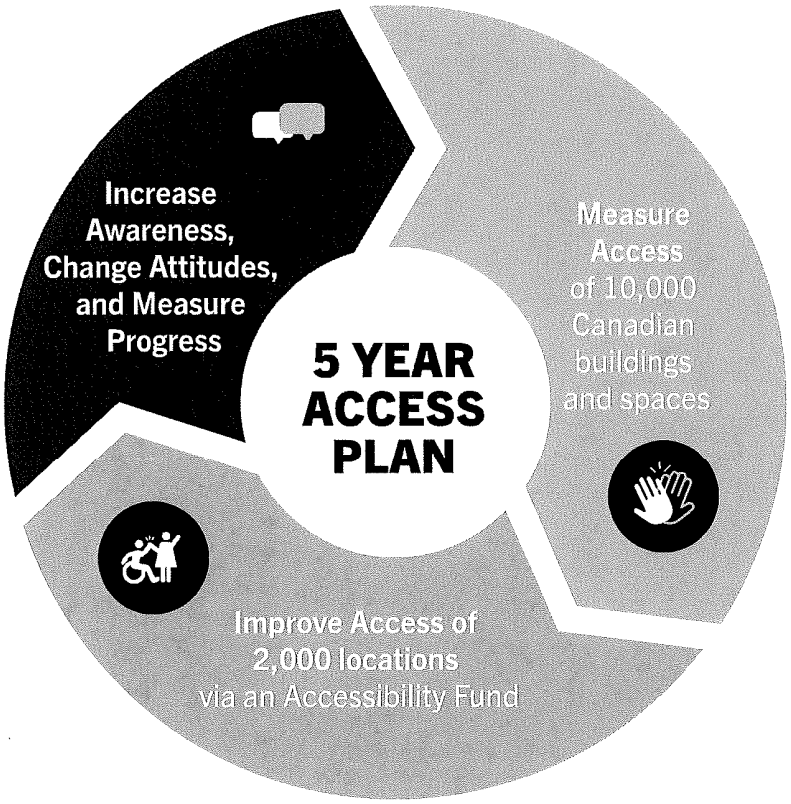
Together with the Government of Canada and the broader community, we will work to remove barriers in the built environment, thereby liberating the potential of people with disabilities.

4. PROPOSED VISION AND APPROACH

Working together to improve accessibility in Canada

Our vision is an inclusive world where people with disabilities are living to their full potential. Our goal is that Canada is fully accessible by 2050. Achieving this will require a combination of public policy and social innovations driven by stakeholders and the private sector.

Our proposed approach, made up of three interdependent strategies, leverages Rick Hansen's leadership and galvanizing power of his message to create a positive foundation for the accessibility, inclusivity and infrastructure renewal goals of the Government of Canada. This plan will establish a means to consistently measure, and provide incentives to improve accessibility in the built environment across Canada. Initiatives designed to increase awareness, change attitudes and measure progress will provide a solid foundation to support legislation, highlight infrastructure investments, and engage communities in this important goal.



Strategy 1: Measuring Accessibility in Canada

Primary Ask

That the Government of Canada fund $22.5-million to support the national roll-out of the Rick Hansen Foundation Accessibility Certification™ (RHFAC) by underwriting a minimum of 10,000 RHFAC ratings across the country.

Through consultation with community stakeholders across Canada and supported by public research, the need for a consistent, professionally administered rating system to address the currently fragmented landscape of building codes and standards was identified. In response, RHF has developed a LEED-style rating system based on global best practices which uses a consistent methodology and professional training: Rick Hansen Foundation Accessibility Certification™ (RHFAC). No existing program addresses this need at a national level.

RHF is requesting support and funding from the Government of Canada to launch and endorse the RHFAC program nationally. By working in partnership with RHF, the Government of Canada can take a leadership role in accelerating market acceptance of the RHFAC program which in turn will help deliver upon their goal of creating stronger, more accessible communities and improved social infrastructure.

The RHFAC program measures the level of meaningful access of buildings and sites and promotes increased access through the adoption of Universal Design principles. Ratings use a consistent methodology designed to provide a holistic view of accessibility. Based upon CSA Standard B651-12, which is anticipated to be adopted by the national building code, RHFAC ratings complement existing code by looking at a space from a user experience perspective. This provides value not only to those with mobility challenges, but also addresses those with broader sensory disabilities such as hearing and vision loss – aspects which are prevalent amongst our aging population. A rating provides a snapshot of a building's current state of accessibility.

Once rated, a building may receive one of two certification levels: 'RHF Accessibility Certified' or 'RHF Accessibility Certified Gold,' and will be eligible to be listed on the RHFAC Registry hosted by the CSA Group. Certification and labelling will enable building owners to publicly showcase their commitment to accessibility in a similar way LEED rated buildings showcase their commitment to sustainability.

The RHFAC program is unique to Canada and has been endorsed by the Government of BC, which has provided funding to launch and incentivize accessibility ratings and upgrades. By March 2019, approximately 1,100 commercial, institutional, and multi-family residential buildings in BC will have RHFAC ratings. Extensive consultation with industry, the disability community, and other provincial governments has been undertaken, with clear support for national expansion of the program. Toward this, discussions with potential national delivery partners such as Easter Seals are underway.

"BCIT is committed to ensuring our campuses are accessible and inclusive for everyone. As we embark on the renewal of our Burnaby campus, we are excited to participate in the innovative Rick Hansen Foundation Accessibility Certification program."

- Kathy Kinloch, President, British Columbia Institute of Technology

In addition to the user-centric perspective of ratings, another unique feature of the RHFAC program is the professional curriculum which enables individuals, including those with disabilities, to gain valuable skills and become accredited accessibility experts. A national roll-out is anticipated to create employment opportunities for a largely underrepresented group of people with disabilities who are passionate about accessibility. The inaugural RHFAC training program was launched this fall in partnership with Vancouver Community College, enabling participants to consistently apply the rating methodology. Formal exams will be administered by the CSA Group and result in an accreditation.

Canadians care about accessibility and believe that the Government of Canada should lead the way in making our nation accessible for people of all abilities. By taking the following actions Canada will lead the world in the promotion and adoption of meaningful accessibility and advanced Universal Design principles:

- Mandate that all federally owned or leased buildings as well as parks and public spaces be rated and, where eligible, be certified – and encourage the same for all federally regulated employers (e.g. Crown corporations, Air Canada, Bell, Chartered Banks);
- Identify buildings or projects that can be "showcases" for a higher standard of accessibility and have them certified RHFAC Gold (e.g. Canadian Museum of Science and Technology, 24 Sussex, Rideau Hall, Centre Block
of Parliament);
- Work with RHF and partners to explore the feasibility of a more integrated and sophisticated model to rate and certify the accessibility of transportation systems;
- Leverage the leadership of the Government of Canada to encourage provinces and municipalities to rate, certify, and label all eligible buildings;
- Mandate (through various cost-sharing/contribution agreements and other mechanisms) that all projects funded via Infrastructure Canada be certified regardless of which level of government ultimately spends the money;

- Work with RHF, provinces and municipalities to encourage the development of various incentives for developers and builders in exchange for meeting a higher standard of accessibility (e.g. RHFAC Gold) such as density/height bonuses, expedited project review/permitting, project/property tax and fee deferrals, waivers and rebates;

- Work with RHF and others to explore additional incentives including social impact financial vehicles (e.g. social impact bonds, social impact investing, inclusive capital, public-private partnerships, etc.) to fund accelerated adoption of higher standards of accessibility (e.g. RHFAC Gold); and,

- Leverage the Government of Canada's access to world standards bodies to help establish the RHFAC program as the global system for measuring the level of meaningful access throughout the built environment.

The Government of Canada's support will accelerate the national roll-out of the RHFAC program in all provinces, municipalities, and within the private sector. Providing a tangible means to measure and report on progress will, in turn, demonstrate Canada's leadership in accessibility to the world. Government actions will pave the way for the adoption of pending accessibility legislation and enable the program to be financially self-sustaining within five years.

Strategy 2: Improving Accessibility and Removing Barriers

Primary Ask

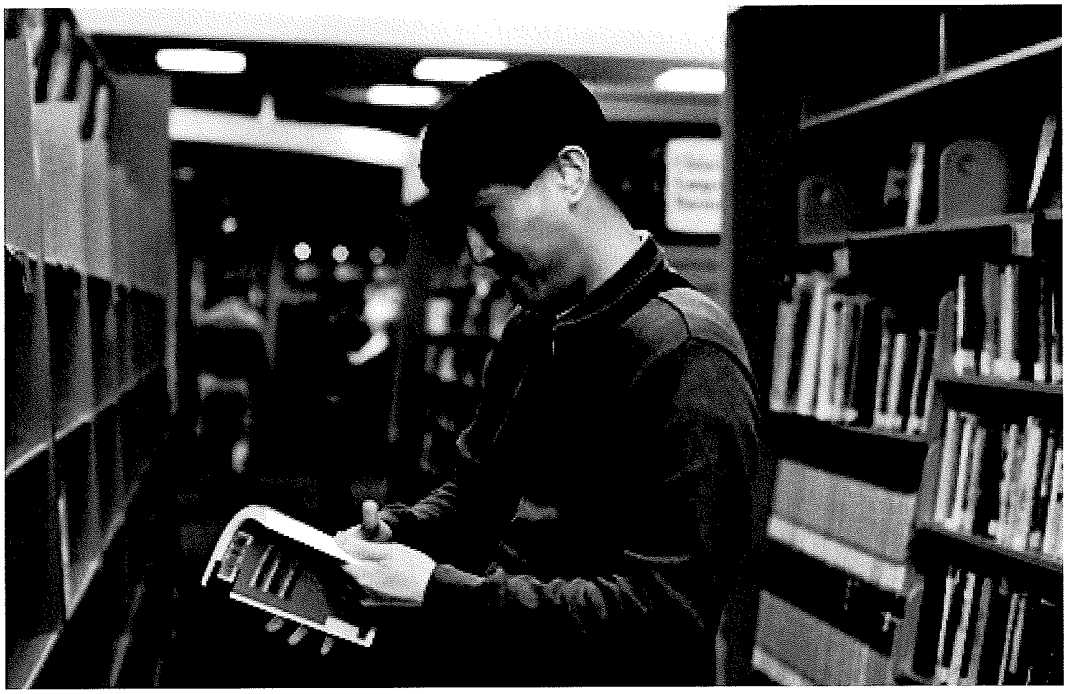
That the Government of Canada fund the creation of an Accessibility Fund of $100 million over five years to enable approximately 2,000 grants of up to $50,000 to support community-based accessibility infrastructure improvement projects across the country, following RHFAC ratings.

Upon completion of the 10,000 RHFAC ratings, based on previous experience, approximately 20% are anticipated to qualify for certification and 80% will require improvements and upgrades to meet the minimum standard of certification. The Accessibility Fund will begin closing the accessibility gap in the built environment, and provide a mechanism to fund community-based building projects for those who receive RHFAC ratings and require infrastructure improvements. The Accessibility Fund will complement the existing Enabling Accessibility Fund (EAF) by adding leverage from the private sector, provinces and municipalities.

RHF has 30 years of experience successfully administering grant programs dedicated to supporting research, sport for athletes with disabilities, and improving quality of life for thousands of people with disabilities. Most recently, RHF successfully delivered the Access4All Canada 150 Signature Project with the support of the Government of Canada. RHF leveraged the Government of Canada's generous investment of $2 million – bringing corporate sponsors, national partners, and an inspired group of donors to the table – almost doubling this original investment. This powerful program resulted in 55 schools and community groups across the country undertaking "Barrier Buster" accessibility improvements and related awareness events. These projects are leaving a tangible legacy of improved accessibility for all Canadians and creating new champions for an inclusive Canada.

Grants from the Accessibility Fund will establish the federal government as a leader in accessibility and provide the necessary incentives to accelerate the adoption of Universal Design principles across a wide variety of building scenarios. Using the RHFAC program to assess the eligibility of applications will ensure projects are evaluated in a professional and consistent manner while simultaneously promoting the adoption of enhanced accessibility and building certification. Funds will also provide incentives for smaller community-based building projects that are being undertaken by public, private, Indigenous communities, and other groups, but for which direct Government of Canada infrastructure dollars are not available.

RHF will seek to leverage the Accessibility Fund with provincial government partners and the private sector as we have done in the past with large scale projects such as the creation of the national Spinal Cord Injury Solutions Network and the Rick Hansen Institute. The Government of Canada's leadership in this initiative, in combination with RHF's recognized brand and established network, will enable this fund to make significant, tangible improvements to accessibility in Canada leaving a visible legacy for all Canadians.



Strategy 3: Increase Awareness, Change Attitudes and Measure Progress

PRIMARY ASK

That the Government of Canada fund $12.5-million over five years for national initiatives designed to educate and engage Canadians about the importance of promoting accessibility and celebrating success. This effort will amplify the government's National AccessAbility Week, setting the stage for national adoption of both legislative and programmatic solutions. Initiatives will include an annual Accessible Cities Award, Ambassador presentations, and a Rick Hansen Access Day to engage schools and communities across Canada in becoming "Barrier Busters". Funding will also enable ongoing research to measure progress, evaluate industry incentives and build an economic business case for accessibility.

Understanding the importance of accessibility and changing attitudes about the potential of people with disabilities is critical to creating social change. By delivering awareness activities and leveraging the positive brand of Rick Hansen and RHF, we will ensure the public, including industry, understands the value and necessity of increasing accessibility in the built environment. This will complement and amplify the Government of Canada's efforts and give momentum to planned activities.

On May 28, 2017, Minister Qualtrough, on behalf of the Government of Canada, announced National AccessAbility Week to celebrate, highlight and promote inclusion and accessibility in our communities and workplaces across the country:

"We've made great strides in promoting inclusion for Canadians with disabilities, but there is still much work to do. We need to change the way we think, talk and act about barriers to participation and accessibility, and we need to do it right from

the start, not as an afterthought. An inclusive Canada is one where all Canadians can participate and have an equal opportunity to succeed."

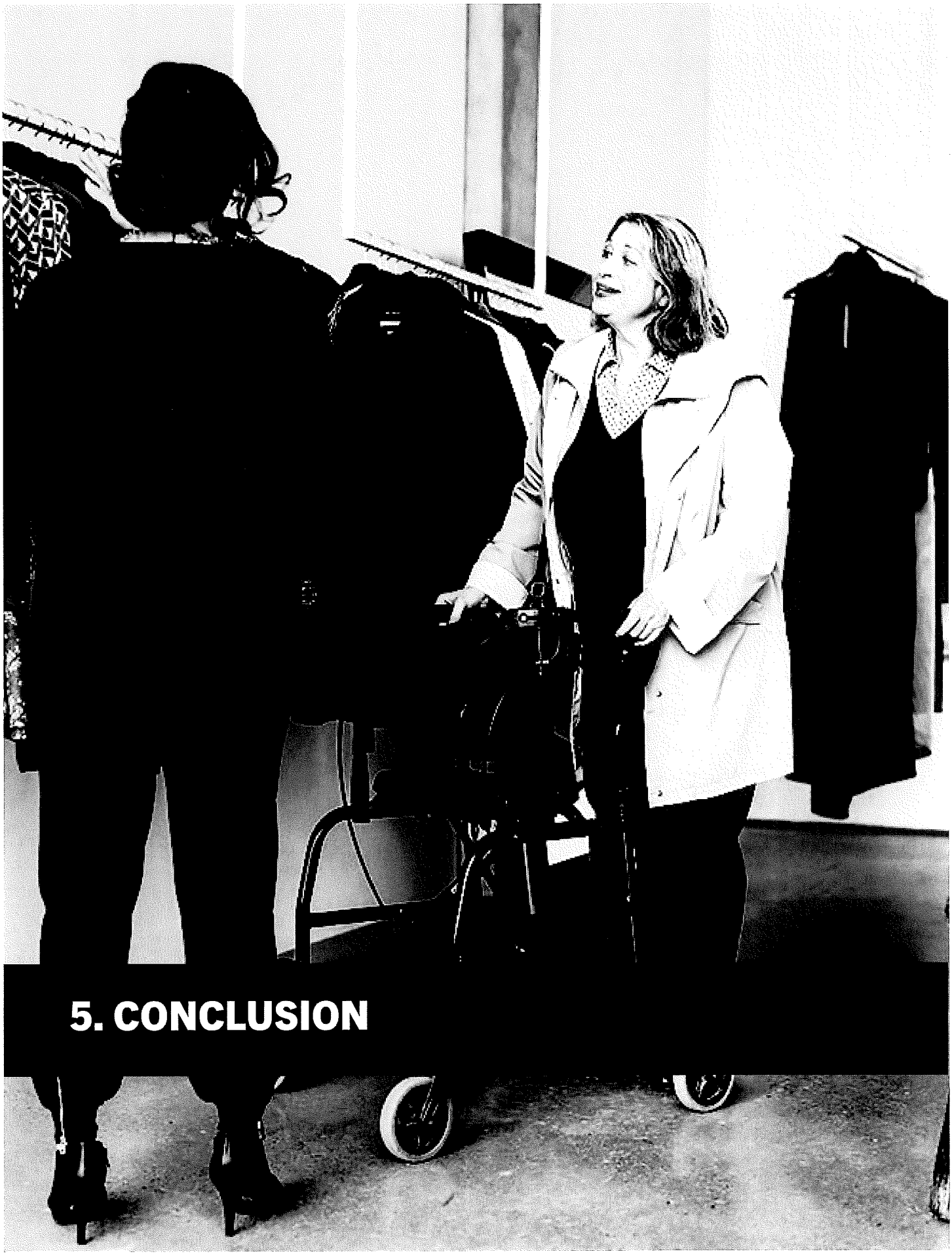
This sentiment directly aligns with Rick Hansen's original vision for his Man In Motion World Tour, and underpins RHF's proposed approach to supporting National AccessAbility Week. Within the week, Rick Hansen's highly recognized and positive image and message that 'anything is possible' will provide a focal point for celebration of accessibility via a Rick Hansen Access Day. Together with public, private, and not-for-profit stakeholders, RHF will foster partnerships and leverage resources toward a common goal of increased accessibility and provide a powerful platform to engage communities, raise funds, celebrate success, and measure progress.

Proposed Activities

- Invite all Canadians to be "Barrier Busters" on a dedicated Rick Hansen Access Day by identifying and removing barriers in the built environment:
  - Leverage existing RHF educational programs, currently used in all provinces and territories, to engage youth at all levels through Abilities in Motion (AIM) Days and accessibility challenges with the opportunity for fundraising;
  - Host RHF Ambassador presentations in schools and communities across Canada;
  - Recruit high profile Canadians as champions; and
  - Partner with retail, corporate, and media partners to facilitate community engagement and fundraising for accessibility initiatives.
- Continue to activate the Accessible Cities Award, an annual award to celebrate the good work both large and small municipalities are doing to improve access, showcase community innovations, and establish benchmarks for progress.
- Utilize multi-channel media and PR outreach to support all elements of National AccessAbility Week.
- Undertake research to identify gaps and measure attitudes and awareness; levels of understanding of the importance of accessibility; progress toward increased accessibility; and generate a business case for pursuing a long-term accessibility agenda.
- Undertake research to explore, with partners, the application of advanced technologies such as artificial intelligence and big data management to help plan and build accessible communities. This technology can help to dramatically scale the rating and assessment of the built environment to ensure Canada is a global leader and fully accessible by 2050.

Summary of Proposed Budget

	FY 2018/19	FY 2019/20	FY2020/21	FY2021/22	FY2022/23	5 Year Total
Accessibility Ratings	$5,770,000	$10,320,000	$6,200,000	$210,000		$22,500,000
Accessibility Grants	$5,500,000	$40,000,000	$40,000,000	$13,750,000	$750,000	$100,000,000
Awareness, Engagement and Measurement	$2,200,000	$2,600,000	$2,600,000	$2,600,000	$2,500,000	$12,500,000
TOTAL	**$13,740,000**	**$52,920,000**	**$48,800,000**	**$16,560,000**	**$3,250,000**	**$135,000,000**



5. CONCLUSION

Together, we can make Canada accessible

The Government of Canada's vision of building an inclusive nation presents a critical opportunity to put issues of accessibility at the forefront of public policy and position Canada as a global leader in how it removes barriers for people with disabilities. The Rick Hansen Foundation is uniquely positioned to assist in delivering upon the government's goals, and is committed to making Canada fully accessible by 2050. Working together, we can achieve this shared vision.

When we remove barriers in the built environment, we are creating a country where all Canadians have a real and fair chance at success. An accessible built environment accommodates everyone – small children, parents with strollers, older adults and seniors, and people with temporary and permanent disabilities – and is inclusive of people's needs across their lifespan. Making our public spaces – our parks, museums, recreation centres, communities – universally accessible unleashes our collective economic and social power, showcasing Canada at its best.

The Government of Canada's leadership in this initiative is vital to making significant, tangible improvements to accessibility in Canada and building stronger communities for all Canadians. Rick and RHF have been trusted and reliable partners of the Government of Canada for 30 years. This proposal delivers three interdependent strategies that augment the Government of Canada's legislative and social infrastructure efforts and capitalize on Rick and the RHF's ability to influence attitudes and change behaviours while delivering successful, socially innovative solutions. The removal of barriers to accessibility in Canada requires awareness and engagement about the importance of accessibility amongst Canadians, as well as the implementation of a series of practical initiatives that will build upon each other.

With the Government of Canada's significant investment in infrastructure planned over the next decade and beyond, there is a once-in-a-generation opportunity to embed principles of Universal Design into the built environment as a prerequisite to building an accessible society. We want to support the Government of Canada in setting the direction where the built environment in Canada, as defined by the buildings and places where people live, work, and play, will be fully accessible for people with disabilities.

Summary of Key Proposal Outcomes

In five years, our proposed initiatives will:

- Provide a baseline measurement of accessibility for at least 10,000 buildings across Canada and establish a mechanism to incent improvements, resulting in tangible upgrades in approximately 2,000 places;

- Fully launch a self-financing, made-in-Canada, globally relevant accessibility rating and certification program that is industry-led and supplying a critical mass of trained accessibility experts, including people with disabilities, to drive the industry forward;

- Attract significant private sector funding to leverage government contributions to accelerate growth of the RHFAC program and Accessibility Fund while providing an objective way to measure progress and improve access in communities across Canada;

- Establish a recognized, highly visible annual series of activities in support of National AccessAbility Week, engaging communities across Canada in actively identifying and removing physical barriers to accessibility, raising funds for accessibility, and celebrating progress;

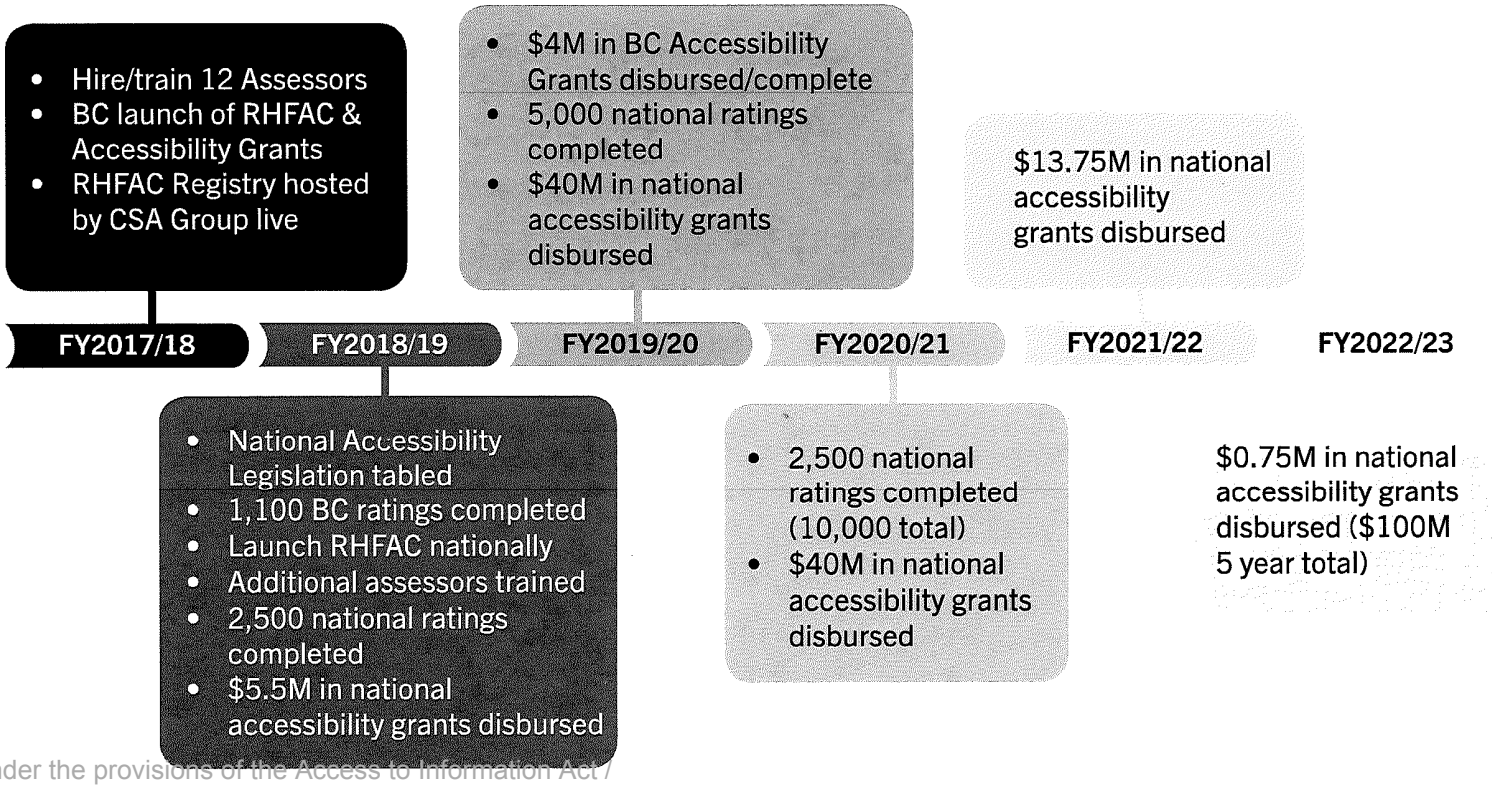
- Increase national levels of awareness, shift public perceptions of the potential of people with disabilities, and garner support for accessibility initiatives using the appeal of the Rick Hansen brand and RHF's effective program delivery; and

- Significantly increase the number of young people across Canada who are educated about the importance of inclusion and the potential of people with disabilities, creating the next generation of champions for accessibility.

Appendix A: Key Proposal Milestones

Key Milestones To-Date

- Conducted focus groups across Canada (see Appendix B for participants)
- Undertook public opinion research on accessibility with Angus Reid Institute
- Established an Accessibility Certification Advisory Committee (See Appendix C for members)
- Partnered with CSA Group to host RHFAC Registry, administer labelling, and accredit RHFAC Professionals
- Conducted BC pilot program 2016
- BC government announced $9M funding to launch RHFAC in BC and provide accessibility grants spring 2017
- Inaugural Accessible Cities Award winners announced at FCM conference spring 2017
- Developed and launched professional training curriculum fall 2017
- Conference Board of Canada Business Case for Accessible Environments to be released late 2017



Appendix B:
RHFAC Industry Consultation Participants

A series of industry consultations were carried out over the last twelve months including sessions in Vancouver, Toronto, Ottawa and Halifax. The purpose of the meetings was to introduce the early versions of the RHFAC program to the community of architects, engineers, developers, municipal and government staff and accessibility experts. The feedback and insight received was critical in building a finished product with widespread support.

Vancouver

- Architectural Institute of BC
- Association of Professional Engineers & Geoscientists of BC
- BC Housing
- Bosa Properties
- British Pacific Properties
- Brook Pooni Associates
- Building Owners and Managers Association of British Columbia
- Catalytico Consulting
- City of Burnaby
- City of New Westminster
- City of North Vancouver
- City of Richmond
- City of Surrey
- City of Vancouver
- District of West Vancouver
- Flavelle Oceanfront Development
- HCMA Architecture
- IBI Group
- McElhanney Consulting Services Ltd.
- Perkins + Will Architecture and Design
- Stantec (Vancouver)
- VanMar Construction

Toronto

- Adaptability Canada
- CSA Group
- City of Brampton
- City of Mississauga
- City of Ottawa
- City of Toronto
- Enable Wellness
- DesignABLE Environments
- Greater Toronto Airports Authority
- IBI Group
- Institute of Canadian Justice
- LRI Engineering
- Morrison Hershfield Engineering
- Oxford Properties
- Professional Engineers of Ontario
- Quadrangle Architecture
- Royal Bank of Canada
- Stiff Sinclair Design, Planning, Project Management, Consulting
- Superkül Architecture
- Regional Municipality of York
- Quadrangle Architecture
- Stantec (Toronto)

Ottawa

- Abilities Centre Ottawa
- Accessible Media Inc
- Adaptability Canada (Ottawa)
- Carleton University
- Department of National Defense
- Iona Street Media
- Interdepartmental Communications Committee on Accessibility
- Ministry of Sport and Persons with Disabilities
- Municipality of Chelsea
- National Capital Commission
- NRC Construction, National Research Council Canada
- Office for Disability Issues
- Office of the Minister of Veterans Affairs
- Ottawa Tourism
- Public Safety Canada
- Public Works Canada

Halifax

- Anne Sinclair Architects
- Canadian Paraplegic Association (Halifax)
- Canadian Paraplegic Association (Nova Scotia)
- Consulting Engineers of Nova Scotia
- Dalhousie Facilities Management
- Dalhousie School of Architecture
- Dillon Consulting Limited
- Engineers Nova Scotia
- Girl Guides Nova Scotia
- Greenwood Lane Inc
- Halifax Regional Municipality
- Harbourside Transportation Engineering Consultants
- Homebuilder's Association Nova Scotia
- Housing Nova Scotia
- March of Dimes (Halifax)
- Municipality of Cape Breton
- Municipality of Colchester
- Municipality of Kings
- Municipality of Lunenberg
- Municipality of Shelbourne
- Nova Scotia Association of Architects
- Nova Scotia Community College
- Nova Scotia Department of Transportation and Infrastructure Renewal
- PCL Halifax
- South West Development
- St. Francis Xavier University
- Sport Nova Scotia
- Walk'n'Roll Halifax
- William Nycum & Associates Limited

Appendix C:
RHFAC Advisory Committee

The RHFAC Advisory Committee advises RHF on the design, scope, development, and distribution of the Rick Hansen Foundation Accessibility Certification™ (RHFAC) program, and related topics as required. This committee of industry professionals serves as a platform for review, feedback, discussion, collaboration and partnership.

Advisory Committee Members:

- Nancy Bestic, Program Manager, CSA Group
- Dave Button, Vice President, Administration, University of Regina
- Darryl Condon, Architect, HCMA Architecture and Design
- Mona Lamontagne, Architect, National Capital Commission
- Lachlan MacQuarrie, Vice President, Real Estate Management, Oxford Properties Group
- Ana Madariaga, Manager Workplace Standards, Corporate Real Estate, RBC
- Muneesh Sharma, Director of Government Affairs, Building Owners & Managers Association of British Columbia
- Stanis Smith, Executive Vice President, Stantec
- Kim Somerville, Manager, Community Social Development, City of Richmond
- Anibal Valente, Vice President Corporate, PCL Construction (retired)
- Mathur Variem, Director Occupational and Life Safety, Cadillac Fairview
- Ron Wickman, Architect, Ron Wickman Architect
- Jeff Wilson, CEO and Founder, Adaptability Canada

For questions, please contact:

Brad Brohman
Vice President,
Government Relations
613-889-6255
bbrohman@rickhansen.com

Rick Hansen Foundation

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SCENARIO NOTE

Meeting between Deputy Minister of Infrastructure and Communities, David Dodge and Michael Horgan of Bennett Jones LLP

Date/Time: **Location:**	November 2, 2017, 9:15-10:00 a.m. 427 Laurier Ave. West, DM Boardroom
Subject:	Meeting Deputy Minister Kelly Gillis
Participants:	Mr. David Dodge, Senior Advisor, Bennett Jones (see biography **Annex A**) Mr. Michael Horgan, Senior Advisor, Bennett Jones (see biography **Annex B**) Ms. Yazmine Laroche, Associate Deputy Minister, INFC Mr. David Murchison, Assistant Deputy Minister, Policy and Results, INFC Ms. Tushara Williams, Director General, Sectoral Policy, Research & Data, INFC

Departmental Objectives

The purpose of this meeting is to have a preliminary, general conversation on infrastructure challenges and opportunities in Canada. The meeting will be an opportunity to get ideas from David Dodge and Michael Horgan about current developments in the infrastructure space with a view to informing our thinking on INFC's policy, research and data plans. The meeting also offers an opportunity to update them on the Investing in Canada Plan and some early feedback on the long-form publication which has been shared with them.

Stakeholder Objectives

Mr. Dodge and Mr. Horgan may want to speak about aspects of the Investing in Canada Plan, including opportunities to ensure that the public sector can plan for infrastructure projects that contribute to productivity as well as adequate revenue streams over an asset's lifecycle. They may raise questions about the future operations of the Canada Infrastructure Bank and opportunities for their firm's clients to pursue projects in energy transmission, water, wastewater and transportation.

Context/Overview

Bennett Jones LLP is a Canadian law firm employing close to 400 lawyers and business advisors, and 500 staff, located in nine Canadian and international offices. The firm provides legal services and advice to businesses and investors with ventures in Canada and abroad. It is active in a host of sectors, including government affairs and public policy, as well as infrastructure and project development. Senior advisors of the firm, including David Dodge and Jane Bird, a former Chief Executive Officer of the Canada Line Rapid Transit, are public proponents of sound infrastructure planning and funding through means other than income taxes, such as tolls, levies and sales taxes.

In recent years, David Dodge has advised the governments of Ontario and Alberta on their respective infrastructure plans. For example, in June 2015, the government of Alberta hired David Dodge to provide advice on that province's multi-year infrastructure plan. His report was appended to Alberta's 2015 Budget plan, released in October 2015 (attached for your reference in **Annex C**). In the report, Mr. Dodge argued that Alberta should invest an additional $1.6 billion per year, on average, from 2016 to 2019, above the

investment level put forward in the province's previous capital plan. He argued that this level of investment would allow Alberta to keep up with the other five large provinces. He also recommended that the province consider tolls and sales taxes to ensure that there was a future revenue stream associated with assets. Mr. Dodge has made similar commentary on tolling in 2016 but with respect to the federal government's plans for infrastructure funding (please refer to **Annex D** for a brief he wrote for the C.D. Howe Institute).

INFC Policy, Data and Research Plans

Reporting on Results

You may wish to seek Mr. Dodge and Horgan's views on how to meaningfully report on the economic impacts of this government's infrastructure investments. They may be able to tell you if they have done this type of analysis in the past for other clients. [redacted] Mr. Dodge and Mr. Horgan may have ideas on what other possibilities might exist.

Long-form Publication

As you know, the purpose of this paper is to provide an explanation of the Investing in Canada Plan to stakeholders and Canadians. Developed in consultation with key partners, including the Privy Council Office and Finance Canada, the publication outlines Canada's infrastructure gaps and how the Plan will address these gaps. An early draft has been shared with them and this is an opportunity to road-test early reactions.

Medium-Term Planning, Research & Data

You could share information on INFC's work to date on the development of a data and research agenda. INFC has received [redacted] to develop a data and research strategy related to infrastructure. You could note that the first step in the data strategy has been to invest in two Statistics Canada surveys - the Canada Core Public Infrastructure survey and the Canada's Capital and Repair Expenditure Survey. These surveys would provide a baseline of information on the state of infrastructure assets and public expenditures across the country. You may wish to seek Mr. Dodge's views on what some of the infrastructure data gaps continue to be and where should government play a role. In addition, you could ask them for their ideas on potential research partnerships over the next few years.

Finally, as INFC starts to think about medium-term planning and what is next for infrastructure, it would be helpful to hear their thoughts on future directions when it comes to public investments in infrastructure. Based on what they are hearing from their clients both at Bennett-Jones and also from provinces, it would be helpful to get input on the kinds of infrastructure that Canadian urban centers and communities would require to meet economic, social and climate challenges and on examples of innovative approaches to tackling these challenges and trends, both at home and abroad.

Points to Register

- I appreciate the opportunity to meet with you and discuss issues and opportunities in the infrastructure sector.
- Through Budget 2017 and the Investing in Canada Plan we are making historic new investments in infrastructure to build the cities of the 21st century and provide communities across the country with the tools they need to prosper and innovate.

- We are making good progress in delivering the Investing in Canada Plan. The Canada Infrastructure Bank will soon be in a position to consider projects. We are also aiming to sign flow-through agreements with provinces and territories by March 2018. These agreements would establish the parameters for the provision of $33.1 billion over the next 11 years.

Additional points on the Canada Infrastructure Bank (if asked)

- The Canada Infrastructure Bank was legally established in June as an arm's length Crown Corporation. We expect that the Bank will be up and running beginning in 2018 but it will take a little while to build staff and capacity to begin projects.

- The Bank will make investments in revenue-generating infrastructure projects that are in the public interest, and seek to attract investment from private sector and institutional investors to those projects. It is a new and innovative partnership model between all levels of government, across all regions of Canada, leveraging the expertise of the private sector.

- The Bank will serve as a point of contact for unsolicited proposals from the private sector.

INFC policy, and data and research plans

- As we think about reporting on outcomes, we would be interested in hearing your thoughts on how we might report on the economic outcomes of infrastructure investments.

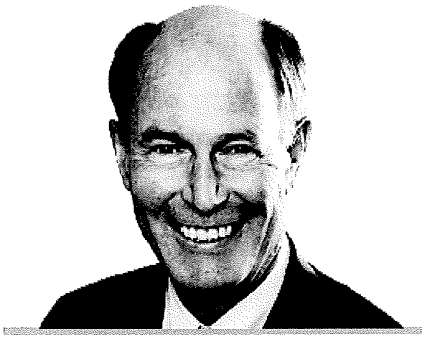
- We are also in the process of thinking about developing a fairly robust research and data strategy on infrastructure. I would be interested in hearing your ideas about research gaps. Perhaps David Murchison could tell you about the work of the policy and results branch, and then we can discuss where and we could collaborate going forward.

Attachments:

Annex A – Biography for David Dodge
Annex B – Biography for Michael Horgan
Annex C – Alberta Budget Plan, 2015 (with appended report from David Dodge)
Annex D – David Dodge, *Infrastructure Spending – Plan Now Needed*, C.D. Howe Intelligence Memo, May 24, 2016

David A. Dodge O.C.

Senior Advisor, Bennett Jones



During a distinguished career in the federal public service, Mr. Dodge held senior positions in the Canada Mortgage and Housing Corporation, the Anti-Inflation Board, and the Department of Employment and Immigration. After serving in a number of increasingly senior positions at the Department of Finance, including that of G-7 Deputy, he was Deputy Minister of Finance from 1992 to 1997. In that role, he served as a member of the Bank of Canada's Board of Directors. In 1998 he was appointed Deputy Minister of Health, a position he held until his appointment as Governor of the Bank of Canada.

Mr. Dodge, appointed Governor of the Bank of Canada, effective 1 February 2001 for a term of seven years, retired on 31 January 2008. From July 2008 to June 2014, he served as Chancellor of Queen's University. From 2009 to 2015, he was a member of the board of directors of Canadian Utilities Limited, ATCO Limited and the Bank of Nova Scotia.

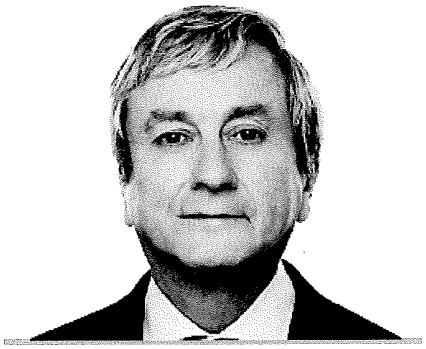
Mr. Dodge is Senior Advisor at Bennett Jones LLP one of Canada's leading law firms. He also serves on the board of the Canadian Institute for Advanced Research, and Chairs the National Council of the C.D. Howe Institute.

A native of Toronto, Mr. Dodge received a bachelor's degree (honours) from Queen's University, and a PhD in economics from Princeton.

During his academic career, he taught economics at Queen's University; at the School of Advanced International Studies, Johns Hopkins University; at the Faculty of Commerce at the University of British Columbia; and at Simon Fraser University. He also served as Director of the International Economics Program of the Institute for Research on Public Policy. Mr. Dodge has been awarded honorary degrees from a number of Canadian universities. In 2009, he was elected a fellow of the Royal Society of Canada.

Michael Horgan

Senior Advisor, Bennett Jones



With over 36 years of experience in the public sector, Michael Horgan provides clients with strategic advice on the financial sector and on the Canadian and international economies. In addition, he has expertise on Aboriginal, energy and environmental issues.

Prior to joining Bennett Jones, Michael held several high-level positions, including Deputy Minister of Finance, Government of Canada; Executive Director for the Canadian, Irish and Caribbean Constituency, International Monetary Fund; Deputy Minister of the Environment and Deputy Minister of Indian Affairs and Northern Development, Government of Canada.

In the 2007, Michael was awarded the Prime Minister's Outstanding Achievement Award for Public Service. In 2013, he received the Queen's Diamond Jubilee Medal

BUDGET 2015

SUPPORTING JOBS, SUPPORTING FAMILIES. **The Alberta Way.**

2015-18 STRATEGIC PLAN

Alberta

TABLE OF CONTENTS

OVERVIEW

KEY OUTCOMES

1. Alberta has an open, sustainable and increasingly diversified economy that attracts investment and facilitates diversification and expands market access.
2. Alberta's education system enables all Albertans with the necessary skills to participate in a diversified, 21st century economy.
3. Alberta supports and preserves a natural environment for Albertans that has clean air, water, and protected wilderness areas.
4. A health care system that is sustainable, patient-focused and meets the needs of a growing province.
5. A system of supports for seniors that will assist them in remaining independent and participating in their communities.
6. An integrated approach to improving the socio-economic well-being of all Albertans.
7. Indigenous communities and people participate as equal partners in Alberta's economy and society.
8. Increased gender equality in Alberta.

Strategic Plan Overview

Alberta is home to an abundance of resources and natural beauty. It is home to a hard-working and innovative people who are optimistic, entrepreneurial and enterprising. While we have enjoyed tremendous wealth over the last decade, not all Albertans have had the same opportunities to share in this prosperity. The Government of Alberta is committed to restoring economic growth so that all Albertans share in our future prosperity.

The government will drive economic recovery by making targeted investments that encourage innovation and diversification. By attracting and supporting entrepreneurs and job creators we'll enhance our overall competitiveness. The government will promote Alberta's energy interests, working with industry, our federal and provincial counterparts and others to position Alberta as a global supplier of safe, reliable and environmentally responsible energy products. Finally, by investing in infrastructure, public transit, roads and bridges, the government will get Albertans working again and build a strong foundation for our future.

All of this can be accomplished while stabilizing public services that support our communities and protect our most vulnerable. Supporting stable, long-term funding for health care, education and social services will help to build up the next generation of Alberta's leaders and innovators.

We will restore a respectful relationship with this province's First Nations, Metis and Inuit peoples, forging partnerships that recognize the unique and invaluable contribution that Alberta's Aboriginal peoples make to the life of this province. Finally, we will begin to take the steps necessary to ensure that women are afforded no less opportunity, feel no less security, and encounter no greater barriers to success than men in our society.

These changes will be made in a responsible manner, being mindful of our economic circumstances and after consulting widely. Change is only successful when there is openness and transparency. That is the Alberta way.

Together, we will develop a new path as we focus on the following strategic principles:

- **Stabilizing key public services**
- **Returning to fiscal balance**
- **Supporting jobs, economic growth and diversification**

The government will assess 2015-16 performance in relation to the following eight key strategic outcomes:

1. Alberta has an open, sustainable and increasingly diversified economy that attracts investment, facilitates diversification and expands market access.
2. Alberta's education system enables all Albertans with the necessary skills to participate in a diversified, 21st century economy.
3. Alberta supports and preserves a natural environment for Albertans that has clean air, water and protected wilderness areas.
4. A health care system that is sustainable, patient-focused and meets the needs of a growing province.
5. A system of supports for seniors that will assist them in remaining independent and participating in their communities.
6. An integrated approach to improving the socio-economic well-being of all Albertans.
7. Indigenous communities and people participate as equal partners in Alberta's economy and society.
8. Increased gender equality in Alberta.

The outcomes described throughout this strategic plan align with the new government's priorities. However, the metrics, while aligned with the priorities, do not yet reflect the reality of the new government's planned initiatives. The government aims to update these metrics and targets in the 2016 Budget to better reflect its long-term goals and commitments to Albertans.

Outcome 1: Alberta has an open, sustainable and increasingly diversified economy that attracts investment and facilitates diversification and market access.

The government recognizes the importance of taking decisive action to diversify Alberta's economy to proportionately reduce our economic reliance on oil, by building on our strengths to increase economic activity in other key sectors. The government is committed to increasing the economic value of oil and gas activity and creating more in value-added downstream oil and gas, including manufacturing and refining. The province will also support innovation that reduces greenhouse gas emissions and fresh water use and enhances reclamation in the entire petroleum production chain.

New diversification efforts are being launched from the base of the province's existing strengths, including a skilled workforce and low-cost business environment, as well as expertise in agriculture, energy, petrochemicals and tourism. Diversification creates opportunities in other sectors such as alternative energy, high tech, advanced research, film and television production, small brewing, wind power, forestry, value-added agriculture, food processing and tourism.

Ensuring a full and fair return to the people of Alberta for their energy resources is also a priority for the government and supports the vision of Alberta's Heritage Savings Trust Fund. Albertans deserve a royalty system they can trust to optimize returns to Albertans from the natural resources they collectively own. The government will engage with industry and Albertans in open discussions about how Alberta's royalty system can better serve the province for generations to come.

Other top priorities for the government are working with partners and stakeholders to coordinate resources and develop long-term strategies that encourage innovation and diversification; promoting higher-value production; building a modern transportation system and infrastructure; and, improving socio-economic outcomes for all Albertans. Following on the advice of former Bank of Canada governor and leading economist, David Dodge, the government is increasing the Capital Plan by 15% and is taking a counter-cyclical approach to investing in needed infrastructure to take advantage of available industry capacity and low interest rates. The report produced by Mr. David Dodge is attached at Appendix A.

Finally, the government will actively promote Alberta's energy interests by: supporting sector expansion; making investments in value-added processing and refining; gaining access to new markets; and, creating a stable, open and welcoming investment environment that promotes development of the province's energy resources in an environmentally responsible and sustainable manner.

1. Performance Measures

	Last Actual		Target		
Tourism Expenditures	Results	Year	2015–16	2016–17	2017–18
Total tourism expenditures in Alberta ($ billions)	7.4	2012	7.7	7.9	8.3

	Last Actual		Target		
Agri-food Exports by Market	Results	Year	2015-16	2016-17	2017-18
Alberta's agri-food exports by market ($ millions):					
• United States	3,080	2013	3,144	3,357	3,619
• China	1,511	2013	1,481	1,596	1,719
• India	39	2013	45	50	54
• CETA member countries[1]	248	2013	329	355	382
• TPP member countries (excluding USA)	2,062	2013	2,292	2,470	2,663
• Rest of the world	1,807	2013	2,169	2,338	2,520

	Last Actual		Target		
Agri-food Exports by Sector	Results	Year	2015-16	2016-17	2017-18
Alberta's agri-food exports by sector ($ millions):					
• Primary commodities	5,103	2013	5,483	5,911	6,372
• Processed/manufactured products	3,645	2013	3,947	4,254	4,586

Note 1: CETA: the Canada-EU Comprehensive Economic and Trade Agreement

1. Performance Indicator

	Actual			
	2010	2011	2012	2013
Alternative and Renewable Generation Capacity in Alberta (megawatts)	5,678	5,805	6,461	6,573
• Wind	805	895	1,113	1,113
• Hydro	900	900	900	900
• Biomass	340	359	414	417
• Gas cogeneration	3,633	3,651	4,034	4,143

Outcome 2: Alberta's education system enables all Albertans with the necessary skills to participate in a diversified, 21st century economy.

Albertans are on the front lines of economic growth, international competitiveness and responsible government every day in their workplaces. The government contributes to this thriving workforce by: ensuring that workplaces are safe, fair and healthy; ensuring that workers having the necessary skills and resources to do their jobs; and, by assisting employers to understand and adhere to their statutory obligations. Safe, fair and healthy workplaces improve labour productivity and the well-being of Albertans. They also make Alberta a more attractive place to live and work.

Investing in an accessible high-quality education system that provides relevant skills and key competencies is the single best investment our province can make to ensure our future prosperity. By helping Albertans develop the right skills, and helping employers to find and retain the workers they need, our economy will continue to expand and grow. Stable funding and support for our education system allows the government to equip Albertans with the relevant skills and key competencies they need to participate and contribute to this growth.

The government is committed to ensuring that students graduating from high school have the knowledge and skills to succeed in the economy now and in the future. In a competitive global environment, there needs to be close alignment between the K-12 education system and post-secondary institutions, the apprenticeship and industry training system, as well as business and industry.

Priorities in the area of education include keeping class sizes low while responding to growing enrollment in the K-12 system, and ensuring that schools have the people and resources to respond to the complexity of Alberta's classrooms. New schools will continue to be built and modernized in order to decrease class sizes and to improve learning conditions for children.

Further, by freezing tuition for two years, the government is making education more accessible to more students. Long-term, stable funding for post-secondary institutions will support expanding our educated workforce for the challenges that lie ahead.

The government is committed to working with industry stakeholders to refine and develop programs and services that attract workers and will continue to work with industry and the Government of Canada to shape Alberta's labour market policy. Working with partners and stakeholders, the government is committed to policy and program development and delivery in areas such as: increasing the participation of all Albertans in the workforce; improving productivity; governance and licensing of professions; facilitating foreign qualification recognition; and, supporting labour attraction.

2. Performance Measures

	Last Actual		Target		
Labour Force Participation – Interprovincial Rank[1]	Results	Year	2015–16	2016–17	2017–18
Interprovincial rank of Alberta's labour force participation rate (#1 is the highest)	#1	2013	#1	#1	#1

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Post-secondary Education					
Percentage of Albertans age 18-34 participating in post-secondary education	17%	2014	18%	18%	19%
Lost-time Claim Rate					
Number of lost-time claims per 100 person-years worked	1.35	2013	1.35	1.33	1.31
High School Completion					
High school completion rate of students within five years of entering grade 10	82.1%	2013-14	82.5%	82.7%	83.0%
Post-secondary Transition					
Percentage of students entering post-secondary programs (including apprenticeship) within six years of entering grade 10	59.8%	2013-14	60.0%	60.2%	60.2%
Literacy[2]	Results A | E	Year	2015–16 A | E	2016–17 A | E	2017–18 A | E
Percentages of students who achieved standards on Language Arts diploma examinations	87.6% | 11.4%	2014-15	88.0% | 11.8%	88.2% | 12.0%	88.4% | 12.1%

Note 1: Labour force participation rate represents the percentage of Albertans aged 15 to 64 who are either employed or actively seeking employment.

Note 2: A | E: Acceptable | Excellence – the acceptable standard results include the standard of excellence results. Performance measure targets are considered met if the result is not significantly different from the target value using statistical tests.

2. Performance Indicators

	Actual			
Labour Force Participation Rate	2010	2011	2012	2013
Rate of:				
• All Albertans	73.0%	73.6%	73.6%	73.1%
• Aboriginal Albertans living off-reserve	70.4%	67.5%	71.0%	71.9%
• Alberta's immigrant population	68.9%	70.2%	70.1%	68.4%
• Alberta youth (age 15–24)	69.1%	69.9%	68.2%	67.9%

	Actual			
Alberta Immigrant Nominee Program (AINP)	2009	2010	2011	2012
Percentage of AINP nominees who report that they are still residing and working in Alberta one year after obtaining permanent residency	90.4%	87.8%	82.4%	88.5%

Outcome 3: Alberta supports and preserves a natural environment for Albertans that has clean air, water and protected wilderness areas.

Environmental impacts must be considered in the government's decisions and decision-making processes in order to reconcile competing demands on the landscape. The government acknowledges that Albertans and our economic partners demand that Alberta take significant and effective action to promote clean air, water, land and biodiversity conditions that contribute to a sustainable, healthy environment. Coal-fired electricity generation will be phased out to reduce smog and greenhouse gas emissions. Cleaner, greener sources of electricity, including wind, solar and more industrial cogeneration in the oil sands will be encouraged. Attention will be given to a green retrofitting loan program that will assist Alberta families, farms and small businesses to reduce their energy usage affordably. This will reduce negative environmental impacts and create jobs in the construction industry.

The government is committed to being part of the solution on climate change and will improve environmental standards, inspection, monitoring and enforcement to protect Alberta's water, land and air. Standards will be based on independent science and international best practices, designed in consultation with Albertans.

3. Performance Measures

	Last Actual		Target		
	Results	Year	2015-16	2016-17	2017-18
Total Greenhouse Gas Emissions[1]					
Measured in million tonnes of CO_2 equivalent as outlined in *Alberta's 2008 Climate Change Strategy*	267	2013	263	264	265
Municipal Solid Waste[2]					
Kilograms of municipal solid waste per capita disposed of in landfills	911	2013	666	654	632

Note 1: Targets and data are measured on a calendar year and there is a reporting lag period.

Note 2: The 2013 actual is not reflective of historical trends due to the Southern Alberta floods; therefore targets are based on the 2012 actual of 691 kg/capita.

3. Performance Indicators

	Actual			
	2010	2011	2012	2013
Air Quality Index[1]				
Quality of Alberta's air based on five major pollutants: carbon monoxide, nitrogen dioxide, ozone, sulphur dioxide, and fine particulate matter	93%	95%	97%	96%
		Good air quality days		
Visitor Satisfaction				
Visitor satisfaction with quality of services and facilities at provincial parks			85.6% (2013)	86.4% (2014)

Note 1: In 2011-13 five out of six air zones in Alberta achieved the new Canadian Ambient Air Quality Standards, which focuses on a three-year average of the highest occurring concentration levels of two major pollutants; fine particulate matter and ozone. Management action is being taken in the Red Deer region to achieve the standard.

Outcome 4: A health-care system that is sustainable, patient-focused and meets the needs of a growing province.

Universal public health care is one of Canada's proudest accomplishments. This government is committed to ensuring that Albertans have access to a health care system that is accessible, relevant and high-quality—a system that is capable of providing Albertans with the support they need, when they need it. Universal access to high-quality public health care plays a vital role in promoting and protecting the health of Albertans. Timely access to quality health care leads to improved health outcomes and mitigates lost productivity due to illness. It also reduces individual suffering and leads to lower long-term health care costs.

The health-care system must be sustainable to meet the needs of a growing province and to ensure a quality system exists for the benefit of future generations. Also, Albertans expect their health system to be accessible and empower them to take more responsibility for their health.

The government is committed to working with partners and community service providers and agencies to ensure that Albertans have the supports they need to lead healthy lives. A new model for public homecare will enhance and stabilize the health-care system by directing care to where individuals need it. Finally, a mental health strategy is being developed to meet the need for mental health services to Albertans.

4. Performance Measures

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Satisfaction with Health Care Services Received					
Percentage of Albertans satisfied or very satisfied with health care services personally received in Alberta within the past year	66%	2013-14	68%	70%	70%
Healthy Alberta Risk Trend Index (HARTI)[1]					
Average number of health risk factors per person aged 20 to 64 years	2.12	2013	2.06	2.00	1.94

	Last Actual (Year)	Target 2015-16	Target 2016-17	Target 2017-18
Influenza immunization				
• Percentage of Albertans who have received the recommended annual influenza immunization:				
• Seniors aged 65 and over	64%	75%	75%	75%
• Children aged 6 to 23 months	34%	75%	75%	75%
• Residents of long-term care facilities	88% (2013-14)	95%	95%	95%
Childhood immunization rates (by age two)				
• Diphtheria, tetanus, pertussis, polio, Hib	74%	97%	97%	97%
• Measles, mumps, rubella	85% (2013)	98%	98%	98%

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Access to Primary Care through Primary Care Networks					
Percentage of Albertans enrolled in a Primary Care Network	75%	2013-14	76%	77%	78%
Access to Continuing Care Spaces					
Percentage of clients placed in continuing care within 30 days of being assessed	69%	2013-14	70%	70%	70%

Note 1: This measure is calculated using six self-reported indicators of health behaviours known to be risk factors for health, including life stress, body mass index, fruit and vegetable consumption, physical activity, smoking status and frequency of binge drinking.

4. Performance Indicators

	Actual				
	2010	2011	2012	2013	2014
Life expectancy at birth:					
• First Nations	72.14	70.79	72.16	72.53	
• Non-First Nations	81.78	82.00	82.02	82.07	
Life Expectancy at Birth[1]					
Provincial		81.59	81.68	81.71	81.80

Note 1: Adjusted population estimates are used for the denominators of the mortality rates used in the life expectancy calculations. The newly recalculated life expectancy figures will differ slightly from previously reported life expectancy figures released in the Health Business Plan 2014-17.

Outcome 5: A system of supports for seniors that will assist them in remaining independent and participating in their communities.

Albertans have indicated their preference to live in their own residences and communities throughout their senior years. It is essential that progress be made on the continuing care system to provide the health care, personal care and accommodations needed to meet the increasing demand for seniors' independence and participation in family and community life.

The government will finalize plans to create 2,000 public long-term and high-acuity spaces over the next four years, which will contribute to shortening waiting times, easing overcrowding in hospitals and reducing the number of patients being treated in hallways. Repairing hospitals and seniors' facilities and constructing new facilities will also be a priority.

5. Performance Measures

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017-18
Access to Continuing Care Spaces					
Percentage of clients placed in continuing care within 30 days of being assessed	69%	2013-14	70%	70%	70%
Housing Facilities Condition Rating Index					
Percentage of housing facilities in:					
• Good Condition	33%	2013-14	34%	35%	36%
• Fair Condition	62%	2013-14	62%	62%	62%
• Poor Condition	5%	2013-14	4%	3%	2%

Outcome 6: An integrated approach to improving the socio-economic well-being of all Albertans.

The Government of Alberta will work collaboratively with community partners and other levels of government to improve quality of life for Albertans. An integrated service delivery approach that focuses on the individual's unique needs and circumstances will make the system of supports both easier to navigate for clients and more efficient to deliver.

Improving the socio-economic well-being of individuals, families and the community through benefits, skills training, community and entrepreneur supports, workplace and education supports, and preventative supports that foster social, cultural and economic well-being in the community is a critical component of achieving the best quality of life for all Albertans. The government will increase the emphasis on preventative programs and services and will continue to work with communities to reduce poverty, family violence, bullying and homelessness.

The government also recognizes the importance that Albertans place on their safety, security and protection. Engaging Albertans in addressing legal issues and ensuring vulnerable Albertans are protected and supported leads to increased confidence in the province's justice system through decisions and determinations that are transparent, defensible, timely and fair.

6. Performance Measures

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Support for Albertans with Low Incomes Who Need Temporary Help					
Percentage of participants employed after leaving Income Support[1,2]	57%	2013-14	60%	60%	61%

Note 1: Starting in 2015, this measure will be based on a sample of clients surveyed between January and December each year rather than a sample surveyed between September and January.

Note 2: Those that stopped receiving Income Support without obtaining employment could have transitioned to training programs, entered new partnerships (e.g., change in marital status) or received support from other sources (e.g., Canada Pension Plan, Employment Insurance and Assured Income for the Severely Handicapped).

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Family Enhancement and Child Protection Services					
Percentage of children and youth with a new child intervention file who did not have a file closure in the previous 12 months[1]	84%	2013-14	87%	87%	87%
Family Support for Children with Disabilities					
Percentage of families accessing the Family Support for Children with Disabilities program who indicate the services provided had a positive impact on their family[2]	91%	2012-13	n/a	92%	n/a

Note 1: Includes children and youth that are in care and in care.

Note 2: Biennial survey – conducted every two years.

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Assured Income for the Severely Handicapped					
AISH client quality-of-life index[1]	78%	2013-14	79%	80%	81%

Note 1: The index is made up of four equally weighted components based on questions from the annual AISH client survey related to meeting basic needs, the ability to live independently, manage health issues and get involved in the community.

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Satisfaction with Policing					
Percentage of Albertans satisfied with policing in Alberta over the past 12 months[1]	83%	2013-14	n/a	87%	n/a
Maintenance Enforcement Program					
Maintenance Enforcement Program's compliance rate on cases enrolled, by regular monthly payments	73%	2013-14	74%	74%	75%
Percentage of Victims Satisfied with Services					
Percentage of victims satisfied with services provided by employees and volunteers within the criminal justice system	85%	2013-14	86%	86%	87%

Note 1: Beginning in 2015-16, this measure is based on a biennial survey with targets and results available every other year.

Outcome 7: Indigenous communities and people participate as equal partners in Alberta's economy and society.

The government will strengthen economic and social opportunities for Indigenous peoples in Alberta by transforming relationships with Indigenous communities and organizations, industry, government and other partners in a respectful way. This means enhancing collaboration and ongoing dialogue with First Nations to achieve progress in mutually identified priority areas through quarterly meetings and regional tables that recognize the diverse regional issues of First Nations and allow the government and First Nations to engage on a government-to-government basis.

The government will work with Indigenous communities and organizations to support the transfer of knowledge, skills and tools to support effective relationships, policies and initiatives as well as healthy, vibrant Indigenous communities and peoples. Educational attainment, health and well-being, community safety and economic opportunity are just some of the areas where Indigenous peoples and communities can be more engaged. The government will devote new energy to addressing the unacceptable gaps in educational achievement between Indigenous and non-Indigenous students by building partnerships and support for First Nations, Metis and Inuit people to use their skills, knowledge and perspective in the workforce.

7. Performance Measures

	Last Actual		Target		
	Results	Year	2015–16	2016–17	2017–18
Economic Initiatives					
Number of Indigenous strategic economic development initiatives, partnerships and capacity building projects	51	2013-14	37	40	43
Tribal Council Engagement					
Percentage of tribal councils that are engaged through a formal relationship to support land and resource management	44% (4 of 9)	2013-14	67% (6 of 9)	78% (7 of 9)	89% (8 of 9)
High School Completion					
High school completion rate of self-identified FNMI students within five years of entering grade 10	53.2%	2013-14	53.5%	54.0%	54.5%

7. Performance Indicators

	Actual			
	2010	2011	2012	2013
Average Employment Income				
Average employment income of Alberta's population 15 years and over who worked full-year, full time				
• Aboriginal Albertans	n/a	$55,668	n/a	n/a
– First Nations	n/a	$50,033	n/a	n/a
– Métis	n/a	$60,296	n/a	n/a
• Non-Aboriginal Albertans	n/a	$70,042 (2010)	n/a	n/a
Post-secondary Achievement				
Percentage of Alberta's employed off-reserve Aboriginal population that has a university degree compared to that of the non-Aboriginal population	15	13	12	16
		Percentage points lower		

Outcome 8: Increased gender equality in Alberta.

Building a better Alberta includes ensuring the necessary policies, programs and services are in place to increase gender equality. The World Economic Forum has acknowledged numerous studies that confirm greater levels of gender equality enhance productivity and economic growth. Of equal importance to economic arguments for gender equality is the normative recognition that it is a social good to ensure that girls and women feel no less valued and have no less opportunity to live their lives with the same social and economic security as males. Empowering Alberta women and removing social barriers to their equal participation in our society will play an important part in continuing to build a stronger and more prosperous province. As it takes steps to reduce inequality, the government will also engage in a province-wide dialogue on the status of women. The government is committed to increasing support for organizations taking initiatives to end violence against women and within families.

Performance measures related to the participation of women will be reflected in the 2016 budget.

Appendix A:

Report to the Government of Alberta on the Development, Renewal and Financing of the Government's plan for Spending on Capital Projects to 2019

Bennett Jones LLP

Report to the Government of Alberta on the Development, Renewal and Financing of the Government's plan for Spending on Capital Projects to 2019

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October 19, 2015

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INTRODUCTION

The purpose of this report is to set out the principles that should guide the Government of Alberta "on matters broadly relating to the development, reconsideration and renewal of the Government's plan for prioritization of and spending on capital projects, including without limitation of the financing of the capital projects".[1] The capital plan has three basic objectives:

1) to enhance long run growth, thus raising the real incomes of Albertans by improving the allocation of real resources, including raising private sector productivity;
2) to support the delivery of major social programs (education, healthcare, etc…) and,
3) to enhance stability, jobs and growth by making greater investment during periods of weak private investment and vice versa.

Specifically, the report will focus on the following areas:

- The overall size of the capital plan, with consideration to spending already underway or planned, as well as the availability of labour and the potential impact on prices and costs;
- The appropriate mix of capital investment to support both the delivery of education and healthcare services to Albertans and long-term growth of output and productivity, through better infrastructure and;
- Approaches to financing the capital plan in the current economic climate.

[1] Ministerial Order No1,2015

The paper is set out in five parts. In light of the basic principles for the overall expenditure plan to achieve growth and stability, the principles to guide the establishment of the capital component of the plan are discussed in the first section of Part I.[2]

But because private investment and government revenues in Alberta are highly dependent on very uncertain future north American oil and gas prices over which the Alberta government has no control, the Alberta government faces particular challenges in the application of these principles to its overall economic plan and in particular to its capital plan. This is discussed in a second section of Part I.

Part II looks at the capital plan in aggregate. A first section makes interprovincial comparisons to get some idea of the adequacy of infrastructure capital in Alberta and briefly assess the current fiscal room to accommodate capital spending. A second section provides an assessment of the implications of different possible oil price scenarios over the next decade for the appropriate size of the capital plan over 2015-2019. This assessment is based on analysis of the way in which "needs", affordability, and cost pressure are expected to evolve under the different oil price scenarios, and guides the recommendations related to the overall size of the capital plan.

Part III provides guidance on the quantum, financing and allocation of the capital budget for investment in infrastructure required as inputs for the provision of education, health, and general services by the government (schools, hospitals, public buildings and structures).

Guidance for allocation of investment in public use infrastructure (roads, water, sewers, etc) is set out in Part IV along with guidance for financing this investment. This section covers the appropriate mix of capital investment and the approaches to financing the capital plan.

Summary recommendations are presented in Part V.

[2] These principles are applicable in general to any provincial jurisdiction.

PART I – GUIDING PRINCIPLES

A. PRINCIPLES RELATED TO THE CAPITAL PLAN

The capital plan as part of the overall budget plan has three basic objectives:

1) enhance long run economic growth by improving the allocation of real economic resources, including raising productivity in the private sector;

2) support the delivery of major social programs; and,

3) mitigate cycles of boom and bust in the economy, thereby enhancing stability, jobs and growth.[3]

Growth

Growth is enhanced through: (a) the establishment of the legal and regulatory framework which guides private investment in infrastructure over time, most importantly with respect to railroads, electricity, telecom and pipelines, and (b) the direct provision and/or financing of infrastructure related to the provision of public services, such as those associated with schools, hospitals, roads, water, etc. While the main focus of this paper is on provincial government spending on the capital component of the direct provision of public services, the economic principles that should determine the allocation of that spending are similar to those that should determine the allocation of business spending on the provision of private services as guided by the government's legal and regulatory framework.

Just as a private enterprise should allocate its resources to the provision of services which yield the highest net revenues and to investments which yield the highest rate of return, so governments should allocate their resources to services which are judged to be most important for citizens and businesses and to investments which are judged to yield the highest rate of return. In both the private and public sectors, the allocation problem is the same – resources should be devoted to the service or investment which exceeds the next best use of those

[3] As a corollary, the capital plan should preserve or enhance fairness without jeopardizing the growth objective of improving the allocation of real resources.

resources, i.e. the "opportunity cost" of those resources. In both sectors, the allocation of spending between current operations and capital investment depends on the analysis of the mix that will yield the lowest ongoing cost of provision of the relevant service.

In both sectors, the total costs of provision of a service (operating, capital and financing charges) must **over time** be covered by revenues.[4] For services provided by private enterprise, in most cases the revenue comes from the customer who purchases the service because most of the benefit from consuming that service (or good) accrues to the customer exclusively.[5] On the other hand, for many public services, much of the revenue comes from general taxation for two reasons: a) because the benefit of the service is deemed in large part to accrue to the public at large (large externalities) and not exclusively to the user of the service, and b) in most cases because one person's consumption of the service does not usually preclude others from benefiting from the service, although congestion, waiting time and overcrowding can certainly reduce the value of the service.

In general private investment must **over time** be supported by revenues from sales of the service (or good) for which the capital is employed; government investment in public capital is generally supported from general tax revenues except to the extent that a fee or charge is levied for the use of that capital or a particular tax is "dedicated" to the provision of that service. But whatever the source of the revenue, **over time** the revenue must cover:

i. the associated operating and maintenance costs and

ii. the associated interest charges (cost of capital).

In making allocation decisions on any capital investment project, a government must take into account the total costs of the investment and decide on the appropriate revenue source (general taxation, specific dedicated tax and/or user charge) to cover these costs over time.

[4] At the aggregate level, however, total expenditures must over time be covered at least to an extent sufficient to maintain any net debt at a manageable level relative to GDP.
[5] The consumption of that service (or good) by the purchaser excludes others from benefiting from that service (exclusion principle).

Stabilization

Stability of the economy is enhanced by government restraining from spending during periods when private sector spending (consumption and investment) is very strong and inflationary pressures are rising. During these periods, governments should be a net lender[6] and take advantage of the relatively high interest rates which normally prevail during periods of excess demand. Conversely, stability of the economy is enhanced during periods when private consumption and investment are weak by government increasing public investment, consumption or transfers[7] and/or reducing taxes. During these periods, government should be a net borrower and take advantage of the relatively low interest rates and reduced construction costs that normally accompany periods of weak private sector demand. By following this policy of countercyclical budgeting, public debt can be sustained at a manageable level over long periods of time – rising somewhat during periods of weak private sector demand (unemployed resources) and falling during periods of excess demand (inflationary pressures).

Thus to promote sustained growth, government spending on capital should vary in a clearly countercyclical fashion. It should be curtailed during periods of strong private sector expansion and increased during periods of weak private sector investment. But getting the timing of actual investment under a counter-cyclical capital plan exactly right is very difficult to achieve in practice for two reasons. Because capital investment takes time to plan and then longer to execute, projects planned and commissioned when the private sector is weak often are finally executed in times of private sector strength. Second, it is very difficult to forecast how strong (or weak) the economy will be several years into the future. Thus, it is important to plan and prepare for a stream of investments many years into the future, the execution of which can be speeded up or slowed down in a countercyclical way as economic conditions warrant, not as current revenue availability dictates.

With a counter-cyclical policy in place, tax revenues will automatically increase quickly in periods of strong growth and much more slowly (or decline) during periods of weak growth or recession. The implication of this policy is that governments should be net borrowers to finance

[6] Their total revenues should exceed their operating and capital expenditures.
[7] The transfer component of operating expenditures will generally increase faster during slow growth periods so that there is some small "automatic" counter-cyclical pattern to operating expenditures providing a mild stabilizing impact on the economy.

capital spending during periods of slow growth and net lenders (savers) during periods of economic expansion. **Attempting to maintain a balanced budget each and every year will exaggerate cyclical economic volatility and have a perverse impact on long run growth.**

While it is desirable that governments borrow to finance capital spending in times of slow growth, such borrowing increases government debt and hence future debt service charges. Future interest payments must be sustainable under very pessimistic growth and interest rate assumptions. Consequently, capital expenditure plans must take into account the risk of adverse economic outcomes in the future.

Both the capital and operating components of the Budget plan should be designed to meet the same objectives as set out above, but what distinguishes the capital element of the plan from the operating component is the **time horizon** under consideration. While the operating component of the budget is planned and financed to meet the growth and stability objectives in the short run (usually one but at most three years), the capital component should be planned in such a way as to meet these objectives over the long run. This difference in time perspective creates a tension in the budget planning process. There is a natural incentive for both capital and maintenance expenditures to be deferred during periods of slow revenue growth in order to maximize current services that can be provided with limited current revenues, even though over the longer run the lack of capital will create inefficiencies which will limit both future private investment and government services that can be provided from future revenues.[8] In addition, there is a natural incentive for governments to keep general taxation below the level that is necessary to provide revenues necessary to finance the appropriate "efficient" level of capital spending.[9] These natural incentives have generally resulted in under-investment in public capital, in particular growth enhancing infrastructure, in many Canadian provinces and cities (including Alberta) with the result that future growth is constrained and unit cost of future operations is increased.

[8] And when revenues are robust during periods of strong growth, there is a natural tendency to undertake the government investment that has been deferred during periods of weak growth. This results in procyclical pattern of capital investment that drives up the costs of investment and construction for both the private sector and governments during cyclical peaks.

[9] Governments do not like to tax today's taxpayers to pay for capital expenditures which deliver only a small or even a negative benefit today, but will be important to future taxpayers.

To offset these natural incentives to under-invest both in maintenance and infrastructure, government should adopt the following **administrative** principles in planning their capital budget:

1) Departments and agencies need to go through a process to determine the optimal (lowest cost) mix of capital, labour and other inputs that is required to deliver their programs efficiently and assess their capital requirements against this optimal mix. From this analysis they then can produce an estimate of the "backlog" or "excess" of assets optimally needed to deliver current public services.

2) On the basis of macroeconomic projections provided by Treasury Board and Finance, departments and agencies need to plan for capital investment over a five to ten year horizon) to meet current needs and accommodate (and facilitate) future growth.

3) These "bottom up" requests for both operating and capital budgets are then rolled up and prioritized by Treasury Board and Cabinet.

4) Capital **expansion** spending should be financed from a planned excess of current revenue over operating expense (over the business cycle), from asset sales and (especially during periods of excess supply) by prudent borrowing.

5) Budgets for planned capital expansion should be based on prudent projections of future needs with both upside and downside assessment of risks. The degree of prudence should be greater the higher existing debt/GDP ratio.

B. PRINCIPLES AND OUTCOME RELATED TO THE CAPITAL PLAN: THE SPECIAL CASE OF ALBERTA

All of the above principles apply in Alberta but with some difference in emphasis because of the importance of the oil and gas industry to the economy and of non-renewable resource revenues to the government. The exploitation of hydrocarbon resources has been a powerful generator of rapid economic and population growth in Alberta. Because the requirement for infrastructure to support this rapid economic and demographic growth is very high, the requirement for capital spending (investment) by the Alberta government has been high relative to that in slower-growing provinces.

As set out in the general principles above, Alberta government capital expenditures on infrastructure should be planned to meet these high current and future requirements, but executed at a time when private sector investment is relatively weak both to minimize costs to government and to avoid putting additional cost pressures on private sector investment activity. This implies that relatively low levels of government capital spending should take place during the periods when resource activity and prices are high, and hence when revenues are high. Conversely relatively high levels of government capital spending should take place at the very time when resource revenue flows are relatively low, and private sector activity weak. In these circumstances, it is appropriate for the government to borrow to finance capital expenditures to meet the current and future needs of a growing population and expanding economy, whether it borrows from itself (by drawing down financial assets) or from the market.

Over the past two decades, successive Alberta governments have not adhered very closely to the principles set out above concerning the capital plan. Government capital spending has tended to be pro-cyclical in nature, generally rising as a share of GDP during years of strengthening resource revenues and falling after 2010 during a period of generally weakening resource revenues relative to GDP, although in this case the decline may have been warranted to some degree in view of the high level of business investment in the years to 2014.

PART II – THE CAPITAL PLAN IN AGGREGATE

A. THE CAPITAL PLAN IN CONTEXT

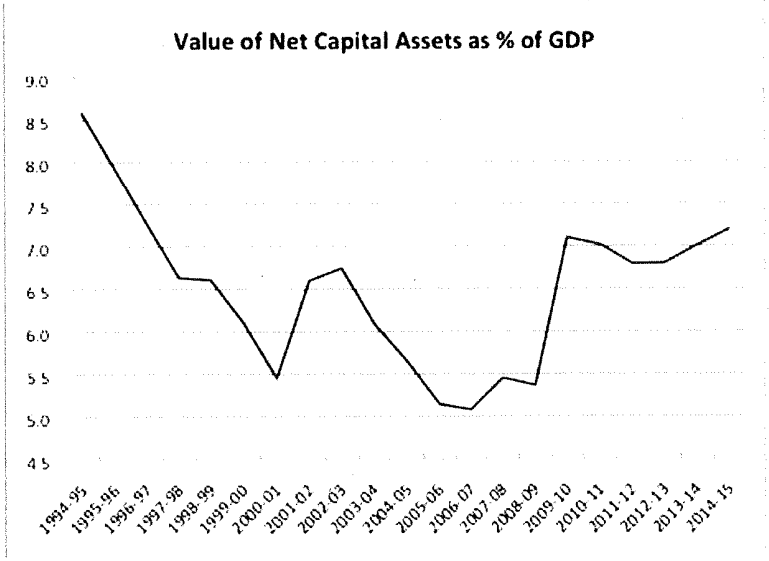
This sub-section aims to shed light on two issues:

- the adequacy of current infrastructure capital relative to needs;
- the current fiscal room to accommodate capital spending.

Adequacy of Infrastructure Capital Relative to Needs

Based on government accounting (fiscal plan basis), the ratio of the value of government capital assets (net of depreciation) to nominal GDP fell in the decade to the mid-2000s, but has since caught up partially to end up at 7.2 percent of GDP in 2014-2015, somewhat above the average for the whole period (Chart 1). Is this high or low in comparison to the needs related to population and economic activity in Alberta? More information is needed to have a judgment on this question.

Chart 1:



Sources: Government of Alberta, *2014-15 Annual Report*, June 30, 2015, and Statistics Canada, Cansim matrix 384-0038.

There is no universally established benchmark to determine what level of government capital is adequate to support economic growth and the provision of public services.[10] But at the

[10] The following publication is worth consulting to have a informative discussion of many issues related to government capital spending adequacy: Drummond, D., E. Capeluk and M. Calver. 2015. "The Key Challenge for Canadian Public Policy: Generating Inclusive and Sustainable Economic Growth", Centre for the Study of Living Standards, CSLS Research Report 2015-11, pp. 26-51.

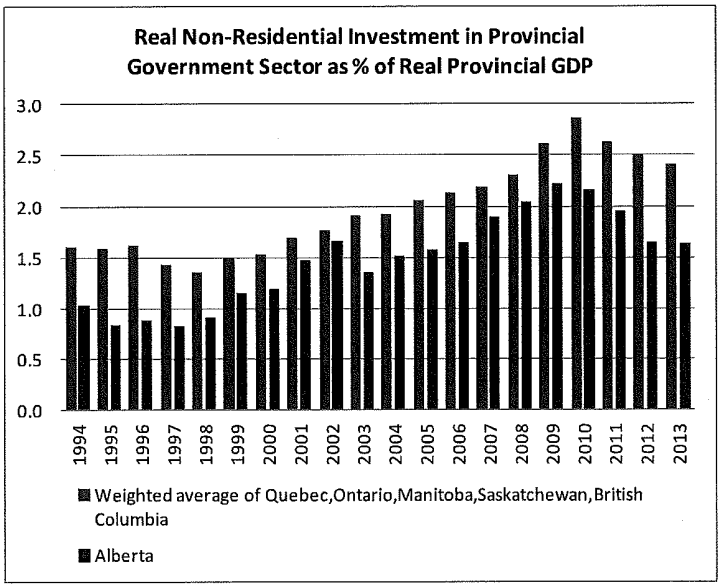
Canadian level, what other Canadian provinces spent on public capital relative to GDP compared to Alberta is relevant.

In trying to gauge how well is Alberta faring relative to other provinces, it makes sense to compare "real" measures of capital investment and capital stock to real GDP as this eliminates the impact of differences in relative price and cost levels across provinces. While it could also be useful to scale real investment and capital stock by population as some of the needs for public capital are demographically related (schools and hospitals for example), capital/population ratios are largely influenced by total population itself in the jurisdiction. (See Chart 3 below). For this reason, real investment and capital stock are best scaled by real GDP, as **real GDP encapsulates the needs to accommodate both population and real economic activity per capita**. I understand that GDP is rather loosely related to the needs for the capital assets that support well-being, but this is the best measure we have to do the job at a macroeconomic level.[11]

[11] There are some "microeconomic" indicators of underinvestment in public capital, such as long commuting time and congestion, for which very incomplete data exist. In this report, I do not rely on such indicators to assess the needs for public capital in Alberta at the aggregate level. For more on these microeconomic indicators, see for example Drummond, Capeluk and Calver (2015), ibid.

Considering now how Alberta fares in comparison with other provinces with respect to real net public capital[12] in relation to real GDP, the first thing to note is that real non-residential investment in the provincial government sector[13] in relation to real provincial GDP has been systematically lower in Alberta than in the other five largest provinces over 1994-2013, with the gap particularly large in the mid-1990s and after 2009 (Chart 2).

Chart 2:



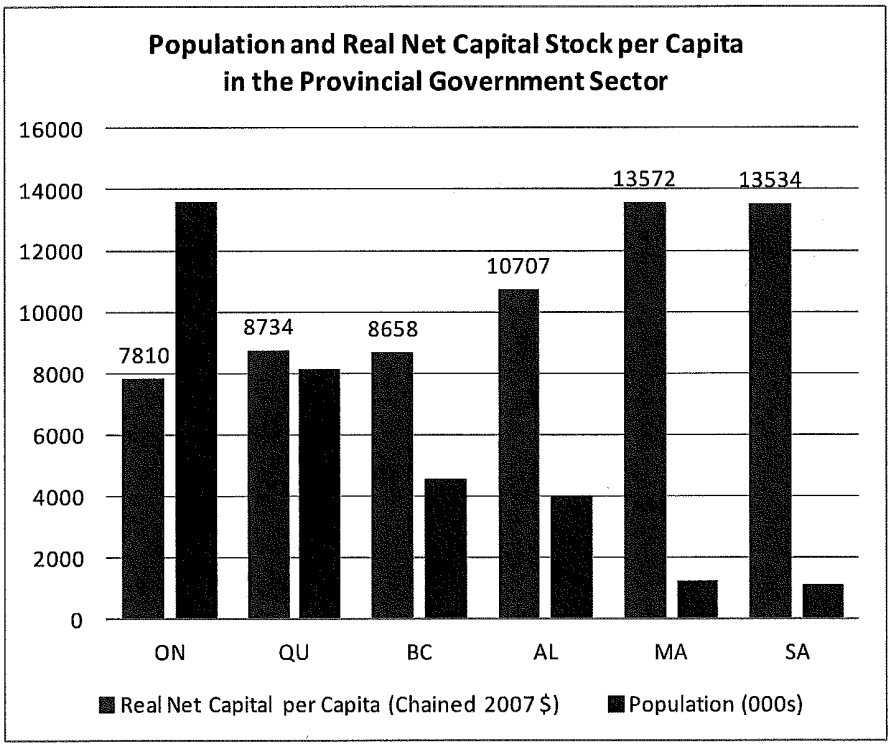
Source: Statistics Canada, Cansim matrices 031-0005 and 384-0038.

[12] Real investment, depreciation and net capital stocks are measured in chained 2007 dollars. Depreciation is linear. I am aware that taking the ratio of quantities measured in chained dollars is not strictly valid, but the distortion should be quite small. Moreover, the comparison of such ratios across provinces should be unaffected for all intents and purposes.

[13] There are no direct measures of real investment and capital stock for the provincial government sector. "Provincial government sector" was approximated by subtracting from "government sector" the following categories: "Other federal government services", "Other municipal government services", and "Other aboriginal government services". Data for "Defense services" were not available for subtracting, but would have been quite small in any event judging by the Canada totals, which are quite small (around 4% of total government sector).

As a ratio to total population, real net capital in the provincial government sector has been higher in Alberta than in a weighted average of the other five largest provinces from 1994 to 2013, the last year for which data on capital stocks by province and industry are available. The data shows a strong negative correlation between the size of the population of a province and the amount of real net public capital per capita (Chart 3). This suggests that there may be strong economies of scale to population in accommodating needs for public capital. As an extreme example, there are less kilometers of provincial highway in Ontario than in Alberta. To that extent, the relatively high level of real net capital per capita in the Alberta provincial government sector would not imply that public capital in this sector is more adequate in Alberta than elsewhere to serve population needs.

Chart 3:

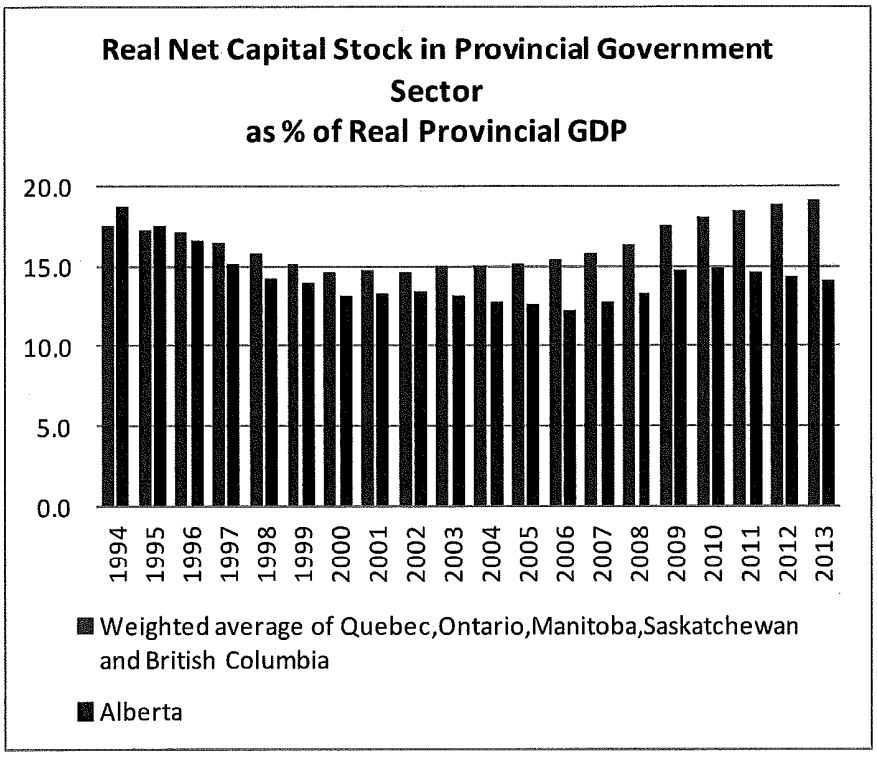


Sources: Statistics Canada Cansim matrices 031-0005 and 051-0001.

The end result is that the real net capital stock in the provincial government sector in relation to real provincial GDP, which was higher in Alberta than in the other five largest

provinces in the mid-1990s, has increasingly fallen below that in the other provinces since then (Chart 4).

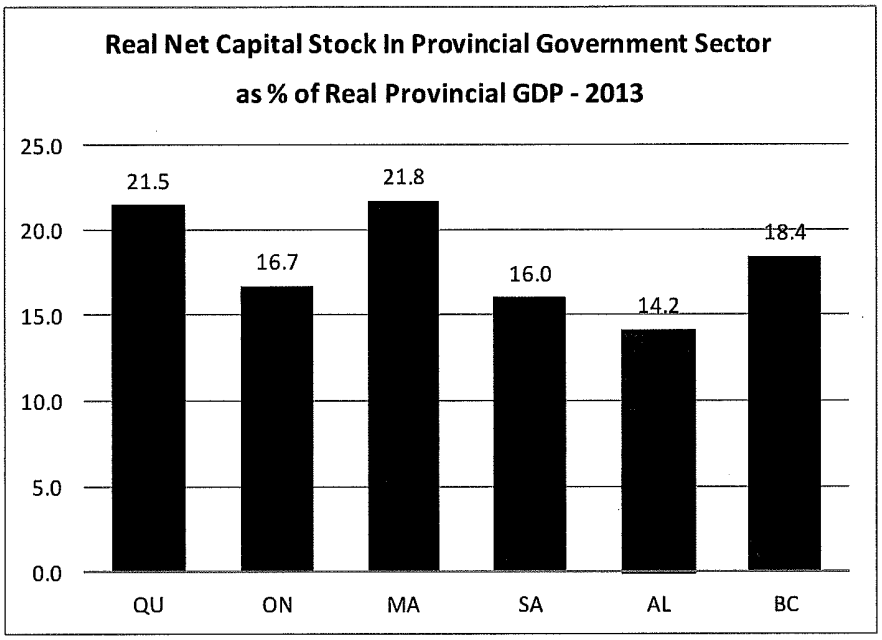
Chart 4:



Source: Statistics Canada, Cansim matrices 031-005 and 384-0038.

By the end of 2013, real net capital stock in the provincial government sector in relation to real GDP was 14 percent in Alberta, lower than in each of the other large 5 provinces (Chart 5). Why is Alberta lower than the other provinces by this measure and higher on average than the other provinces in terms of real net capital per capita? The answer is that real GDP per capita is much higher in Alberta than in the other provinces, reflecting more hours worked per capita in the Alberta economy and more capital used per worker in the business sector. In other words, real **economic activity per capita** is far more intense in Alberta than in the other provinces and public capital has not kept pace with this activity to the same extent as in the other provinces over the last 20 years.

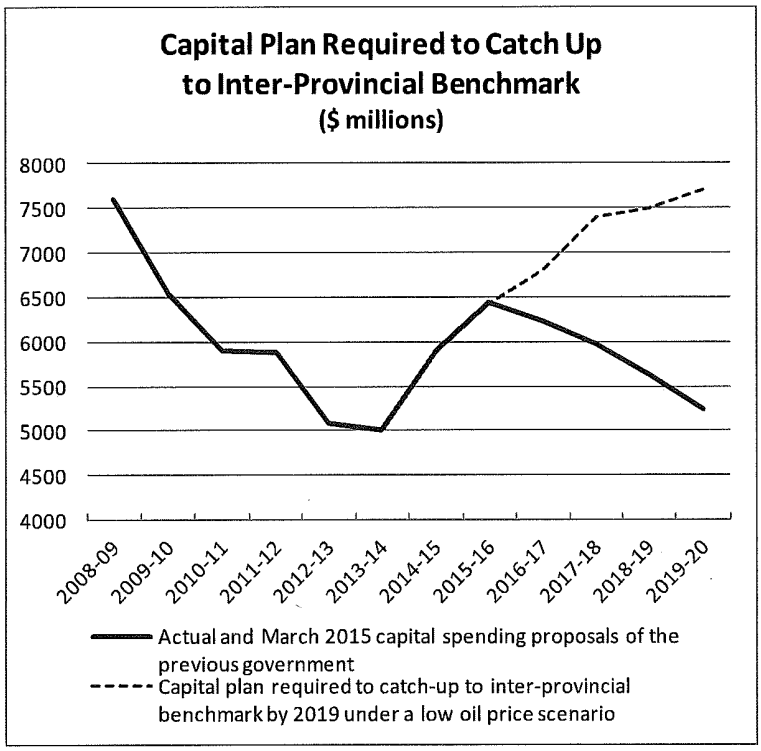
Chart 5:



Source: Statistics Canada, Cansim matrices 031-005 and 384-0038.

Over 1994 to 2013 the weighted mean ratio of real capital stock to real GDP in the other five largest provinces averaged 16 percent. This long-run average of 16 percent can be taken as a provincial benchmark against which to gauge the adequacy of Alberta's capital plan. This benchmark cannot be considered a precise indicator of what the "required" ratio for Alberta should be by any stretch of the imagination, if only because all provinces have underinvested in public infrastructure to a greater or lesser degree. Nevertheless the gap above Alberta that this ratio implies suggests that Alberta may have under-invested in public capital in the past and now has some catch-up to do to ensure an adequate level of public capital to meet current needs, let alone meet future needs. How much catch-up? There is no clear-cut answer to this question, at least at the macroeconomic level. Nevertheless, on the assumption that the backlog of unmet needs in Alberta has some relationship to Alberta's gap relative to the provincial benchmark, then it can be estimated that **to meet the 16 percent benchmark by 2019-2020, the Alberta government would need to add an average $1.6 billion per year from 2016 to 2019 to the March 2015 capital plan put forward by the previous government** (Chart 6).

Chart 6:



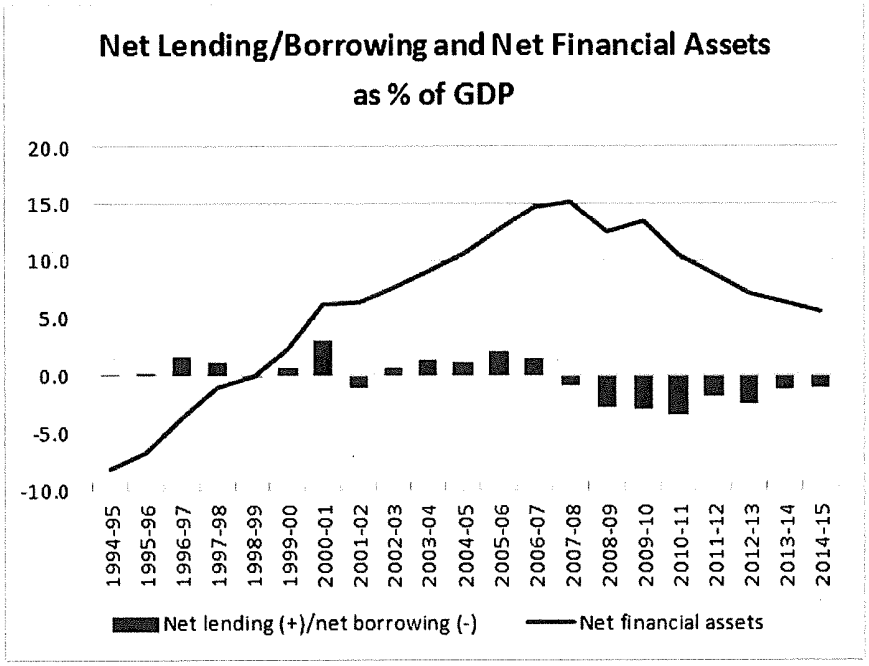
Sources: Calculations based on data from Government of Alberta, *2014-2015 Annual Report*, June 30, 2015,

Statistics Canada, Cansim matrix 384-0038, Government of Alberta, *Budget 2015*, March 2015, and real GDP projections provided by Alberta Treasury Board and Finance.

Fiscal Room to Accommodate Capital Spending

On an overall cash basis – total revenues less total expenditures – the government of Alberta was a net lender from 1994 to 2006 and a net borrower after 2006.While the net lending position from 1994 to 2006 led to a build-up in net financial assets, the net borrowing position after 2006 has resulted in a substantial reduction in net financial assets (Chart 7)

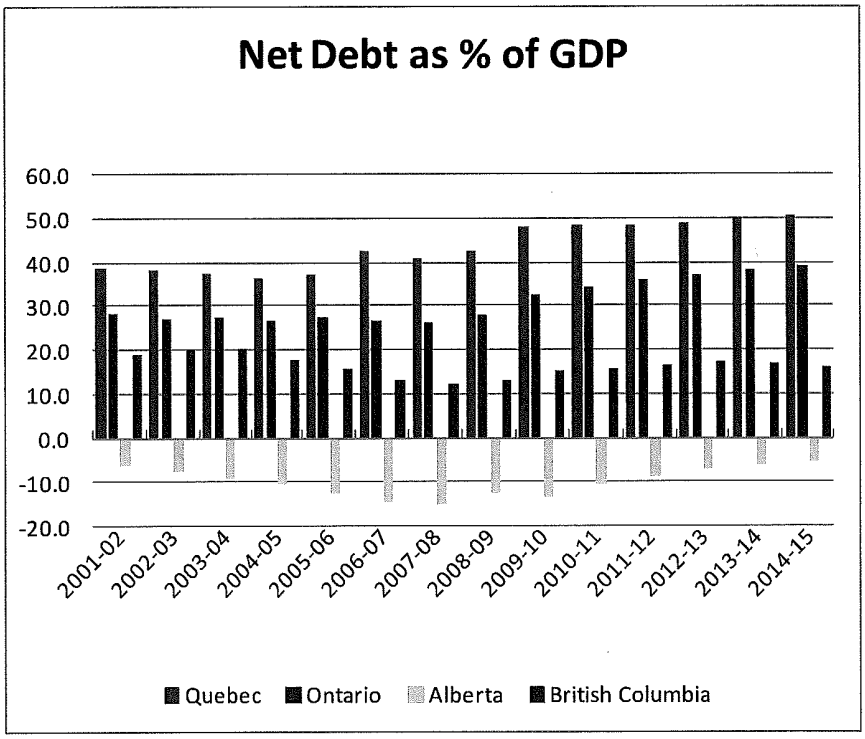
Chart 7:



Sources: Government of Alberta, *2014-15 Annual Report*, June 30, 2015 and Statistics Canada, Cansim matrix 384-0038.

Despite being in a net borrowing position since 2006, until the end of 2014-15 Alberta was unique among the four largest provinces in having a net financial asset (NFA) position rather than a net debt. On a fiscal plan basis, Alberta government's net financial assets reached a peak of 15.2 percent of GDP in 2007-2008 and gradually fell thereafter to 5.5 percent of GDP by 2014-2015 (Chart 8).[14] At the same time, the net debts of the governments of Quebec, Ontario and British Columbia rose to 51 percent, 39 percent and 16 percent of their respective provincial GDP by 2014-2015. **Thus, Alberta has prudent room for net borrowing before its debt/GDP reaches even the relatively low ratio of British Columbia.**

Chart 8:



Sources: Public Accounts and 2015 budgets of the governments and Statistics Canada Cansim matrix 384-0038.

[14] On a consolidated financial statements basis. NFA was forecast to be about 2.4% of GDP at the end of 2014-15 in *Budget 2015*.

B. THE CAPITAL PLAN FOR 2015-2019

In drawing a public capital plan for the next five years, three factors must be taken into account: (1) the current and future needs for public capital to support long-term growth and the provision of adequate public services, (2) the large uncertainty about the economic outlook for Alberta in view of the hard-to-predict large movements in the price of oil, and (3) the degree of pressure on costs over the next five years. Indeed, these three factors are at the root of the answers to the following three questions:

- Is the capital plan consistent with achieving some target level of real public capital, account taken of the projected growth of population and real activity per capita?
- What is the range of capital spending growth that the government can afford to accommodate while keeping public finances on a sustainable path, assuming no discretionary change in the generation of revenues?
- Are the timing and size of the capital plan consistent with the degree of cost pressure in the Alberta economy?

This section will try to answer these three questions. In a first part the economic and fiscal context which any sensible capital planning must take into account will be defined. The risks that arise from uncertainty about future oil prices will be addressed through a range of economic and fiscal scenarios that derive from different oil price assumptions not only over 2015-2019 but also 2020-2024. All three factors conditioning capital planning, i.e. needs, affordability and cost pressure, depend on the economic scenario that is expected to prevail. In a second part, an analysis of how the three factors evolve in the context of the various oil price scenarios will underpin conclusions about the appropriate size of the capital plan over the period 2015 to 2019.

Oil Price Scenarios and Fiscal Implications

To address economic uncertainty, a range of economic scenarios driven by different assumptions about oil prices are considered. Oil price is key because it has a great deal of direct and indirect influence on the Alberta economy, and hence on government revenues, public capital needs and cost pressure. As first benchmark case, a low WTI oil price is assumed to prevail over the next five years, starting at U.S. $51/bbl in 2015 and edging up to U.S. $58/bbl in 2019. But this is not the end of it. In order to properly assess the risks implied by a public capital plan with respect to needs and affordability, one must take account of the outlook for the oil price and the Alberta economy over the following five years, i.e. 2020 to 2024. A scenario of rising real oil prices over 2020-2024 would boost the need for, and make financial room available to cover the cost of borrowing, for more capital spending over 2015-2020 than a scenario of flat, low real oil price from 2020 to 2024. Therefore, the first benchmark scenario, and the one that I consider the base case, is one in which low oil prices prevail over 2015-2019, as specified above, followed by a rise in the WTI oil price to the equivalent of U.S. $82/bbl (at 2020 U.S. prices) by 2024. A "low-low" variant aims at capturing downside risks to this first benchmark scenario by keeping the WTI oil price at the equivalent of U.S. $63/bbl (at 2020 U.S. prices from) from 2020 to 2024. A second benchmark scenario is also considered: one in which WTI oil price strengthens to U.S. $80/bbl by 2019 and is kept at the equivalent of U.S. $82/bbl at 2020 U.S. prices from 2020 to 2024. In a "mid-to-high" variant of this second benchmark, the oil price again rises to U.S. $80/bbl by 2019 but then escalates to the equivalent of U.S. $94/bbl at 2020 prices by 2024. This last scenario aims at capturing the upside risks to oil price expectations. Table 2.1 provides an overview of these oil price assumptions.

Table 2.1:

WTI Oil Price Assumptions

	At current U.S. prices		At 2020 U.S. prices	
	2015	2019	2020	2024
Low oil price scenarios:				
1. Low-low oil price (low variant)	51	58	63	63
2. Low-to-mid oil price (first benchmark)	51	58	63	82
Medium oil price scenarios:				
3. Mid-mid oil price (second benchmark)	54	80	82	82
4. Mid-to-high oil price (high variant)	54	80	83	94

Each of these scenarios generates different profiles for the Canadian dollar exchange rate, real and nominal GDP growth rates, population growth, CPI inflation, and growth in government resource revenues and other economic variables. For these profiles over 2015 to 2019, I rely on simulations provided by Alberta Treasury Board and Finance, the results of which I find reasonable. For the same profiles over 2020 to 2024 I use "rules of thumb" that are consistent with economic relationships (and Finance assumptions) imbedded in current economic models of the Albertan economy.[15] In order to illustrate fiscal outcomes under these four scenarios, illustrative operating and capital expenditures numbers are necessary. The assumptions used to construct numbers with respect to growth in government expenditures and non-resource revenues across the four oil price scenarios are summarized in Table 2.2. It is worth noting that from 2015-16 to 2019-20 operating expenses grow on average by 3.7 percent per year in the low oil price scenarios and by 4.6 percent per year in the medium oil price scenarios. This compares with an average growth rate of 5.6 percent per year from 1995-96 to 2014-15.

Table 2.2:

Working Assumptions about Expenditures and Non-Resource Revenues

	2015 - 2019	2020-2024
Operating expenses	Population growth + CPI inflation + 1%	Population growth + CPI inflation
Capital spending	As per March 2015 plan by the previous government	Population growth + CPI inflation
Non-resource revenues	As per Finance simulations based on status quo for taxation and fees	Fixed proportion of nominal GDP

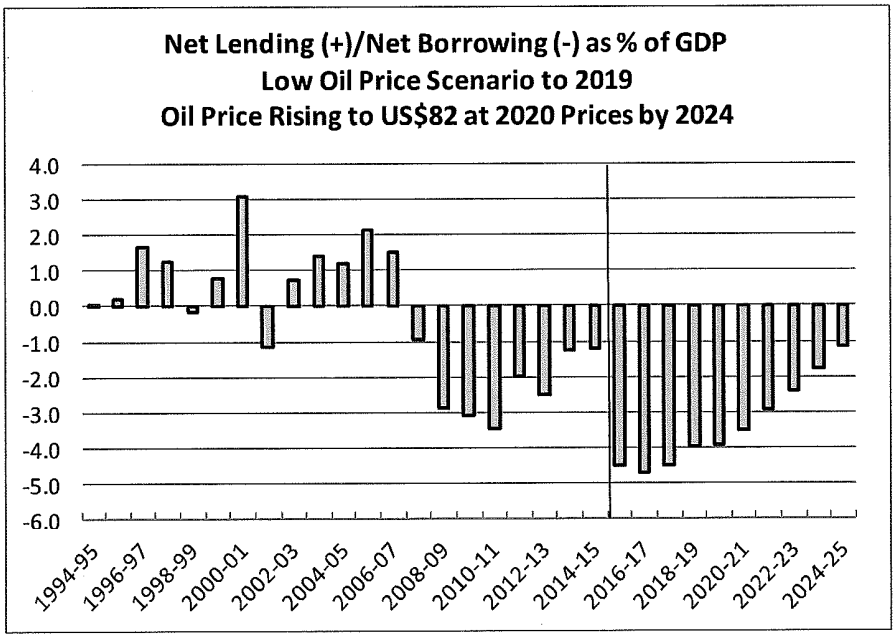
It is worth noting that the assumption regarding capital spending over 2015-2019 does not reflect any view that the March 2015 plan was most appropriate but rather the fact that this was the latest and only actual plan available this summer to serve as a basis for my analysis. At the moment, actual capital spending commitments amount to 94 percent of the March 2015 total capital plan.

[15] See Table 2.6 in the annex for projections of real GDP and population growth in Alberta under various oil price assumptions.

It is important to realize that the rules defined in Table 2.2 are **not recommendations** to the government but simply **working assumptions** that are necessary to calculate fiscal balances going forward. When the government has decided on the pace of spending growth and changes in taxation or fees, the precise fiscal balances will have to be recalculated. They will differ in detail from those based on the above working assumptions. Nevertheless, the simulated balances shown in Table 2.3 below give a good general picture of the outlook under the four oil price scenarios.

The **low-to-mid** oil price scenario is probably the one that best balances the risks. Under this scenario, net borrowing is at its peak in relation to GDP in 2016-2017 and gradually diminishes to 1.2 percent of GDP by 2024-2025 as both the operating deficit contracts and the surplus of resource revenues over capital spending expands in relation to GDP (Chart 9). Net financial assets turn to net debt in 2016-2017. Net debt stabilizes at 20.5 percent of GDP in 2023-2024 (Chart 10, low-to-mid case).

Chart 9:

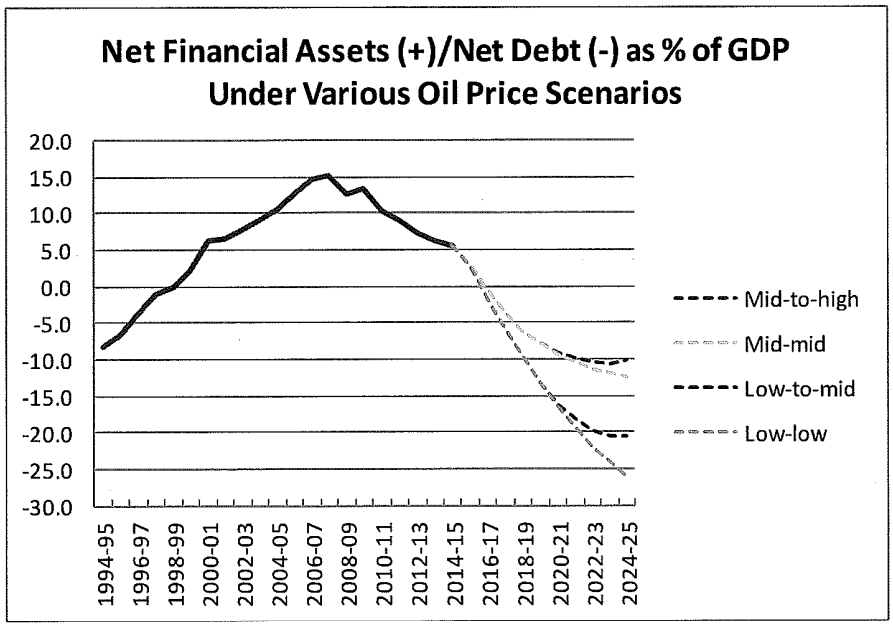


In the **low-low** oil price scenario, in contrast, net debt never stabilizes in relation to GDP. It grows rapidly to reach 26 percent of GDP by 2024-2025 and would likely continue to grow thereafter. Net borrowing averages 3.8 percent of GDP over the next decade with resource

revenues continuously falling short of capital spending. This is a high risk scenario under which the credit worthiness of the Alberta government could be seriously compromised, especially if there was slippage on the revenue side or the expenditure side relative to the illustrative levels assumed.

With the more optimistic second benchmark price scenario (**mid-mid**), net financial assets turn to net debt in 2016-17. Net debt subsequently progresses at an increasingly slower pace to reach 12 percent of GDP by 2024-2025. The illustrative expenditure and revenue assumptions in Table 2.2 would be sustainable under this benchmark scenario in the sense that Alberta would have a low and stable level of net debt in relation to GDP.[16] In the **mid-high** oil price variant, the net debt ratio stabilizes at 10.5 percent by 2023-24, then begins slowly to diminish.

Chart 10



[16] The net debt/GDP ratio in all likelihood would stabilize at a level not exceeding 15 percent in the second half of the 2020's.

Table 2.3:

Fiscal Balance and Net Financial Assets Under Different Oil Price Scenarios

	As % of GDP				
	2014-15	2015-16	2019-20	2022-23	2024-25
1. LOW-LOW OIL PRICE: (LOW VARIANT)					
Net lending (+)/borrowing (-)	-1.2	-4.5	-3.9	-3.3	-2.9
Net financial assets (+)/net debt (-)	5.5	2.4	-13.4	-22.0	**-26.1**
2. LOW-TO-MID OIL PRICE: (FIRST BENCHMARK)					
Net lending (+)/borrowing (-)	-1.2	-4.5	-3.9	-2.4	-1.2
Net financial assets (+)/net debt (-)	5.5	2.4	-13.4	-19.7	**-20.5**
3. MID-MID OIL PRICE: (SECOND BENCHMARK)					
Net lending (+)/borrowing (-)	-1.2	-4.0	-2.0	-1.5	-0.9
Net financial assets (+)/net debt (-)	5.5	2.9	-7.8	-11.4	**-12.3**
4. MID-TO-HIGH OIL PRICE: (HIGH VARIANT)					
Net lending (+)/borrowing (-)	-1.2	-4.0	-2.0	-1.1	-0.2
Net financial assets (+)/net debt (-)	5.5	2.9	-7.8	-10.5	**-10.2**

Capital Planning for 2015-2019

The first conclusion that emerges from all the simulation results in Table 2.3 is that in all likelihood the Alberta government will not face financial constraints over the next four years in accommodating or even significantly expanding the capital plan put forward by the previous government in March 2015. Net borrowing will need to increase considerably and the net financial asset position of the government will switch to a growing net debt position.[17] But **affordability** over the remainder of this decade is highly unlikely to be an issue at current tax rates as long as growth in operating expenditures does not greatly exceed the assumptions in Table 2.2.[18]

However if there were to be no significant recovery in oil prices between 2020 and 2024, the debt situation would become more worrying. The one case that raises very real concern from an affordability standpoint is the low-low scenario, in which continuously low real oil prices over the full period to 2025 creates an unsustainable debt dynamics for the provincial government.

From a "needs" perspective, two considerations come into play. First, as discussed earlier, there is presumption from inter-provincial comparisons that capital spending needs to increase faster than GDP over the next five years just to bring the public capital stock more in line with the needs of both population and economic activity per capita over this period (Table 2.4). Second, these needs will grow at varying rates during 2020-2024 depending on the oil price scenario that will prevail. The growth in capital spending "needs" has a relationship to the growth in GDP, and therefore should be strongest in the mid-to-high scenario, lowest in the low-low scenario and in-between in the low-to-mid and mid-mid scenarios. Given that public capital projects typically have relatively long periods of gestation, additional capital spending must start being incurred well before 2020 if these future needs are to be at least partially met.

[17] This ignores possible reevaluation effects on net financial assets, for example the possibility of increases in the market value of net financial assets.

[18] I want to stress that the operating expenditures assumed in Table 2.2 are very restrictive over the next two years and could be very difficult to achieve in light of the very low oil prices, drought conditions and slow growth likely to prevail in 2015 and 2016.

Table 2.4:

Planning for Capital Spending over 2015-2019

		Capital needs 2020-2024:		Pressure on costs
	Affordability	**Nominal GDP growth**	**Case for upgrade**	**2015-2019**
1. Low-low oil price	Risky	4.3	moderate	Very low
2. Low-to-mid oil price	Yes	5.5	strong	Low
3. Mid-mid oil price	Yes	5.6	strong	Low
4. Mid-to-high oil price	certainly	6.1	very strong	Low to moderate

In light of this analysis, it is **recommended** that the government not only accommodate the capital plan proposed in March 2015 by the previous government but also **upgrade** it by an amount sufficient to bring the ratio of net public capital stock to GDP in real terms closer to the 16 percent provincial benchmark by 2019. As an illustration, suppose that 16 percent were to be targeted by 2019, the Alberta government would need to add an average $1.6 billion per year from 2016 to 2019 to the March 2015 capital plan put forward by the previous government, assuming that plan for 2015 -2016 is realized. A possible profile for the upgraded capital plan would be as in Table 2.5 (see also Chart 6):

Table 2.5 – RECOMMENDED CAPITAL PLAN AGGREGATE TARGETS

	March 2015 Capital Plan Proposal		Upgraded Capital Plan	
	$ Millions	Implied real (1) capital/GDP in %	$ Millions	Implied real (1) capital/GDP in %
2015-16	6431	14.6	6431	14.6
2016-17	6235	15.0	6800	15.2
2017-18	5979	15.2	7400	15.6
2018-19	5624	15.3	7500	15.8
2019-20	5233	15.3	7700	16.0

(1): Based on real GDP from low oil price scenario.

It is worth noting that out of the cumulative $35.8 billion upgraded capital plan to 2019, some $27.6 billion (77%) are already committed in some way to projects that are under construction or have contractual obligations for planning and design work. Thus the un-committed capital budget to 2019-2020 implied by the fully **upgraded** plan would be $8 billion.

It must be stressed that any capital plan must only incorporate projects that generate positive net social rates of return. In other words, the projects must pass the test of benefit-cost analysis for inclusion in the capital plan. In practice, the capital plan must rest on a bottom-up approach, as outlined in Part I and actually followed by the Alberta government. Priority projects that meet certain criteria that are consistent with the notion of social rate of return are submitted by ministries and then prioritized and approved by Treasury Board and Cabinet.

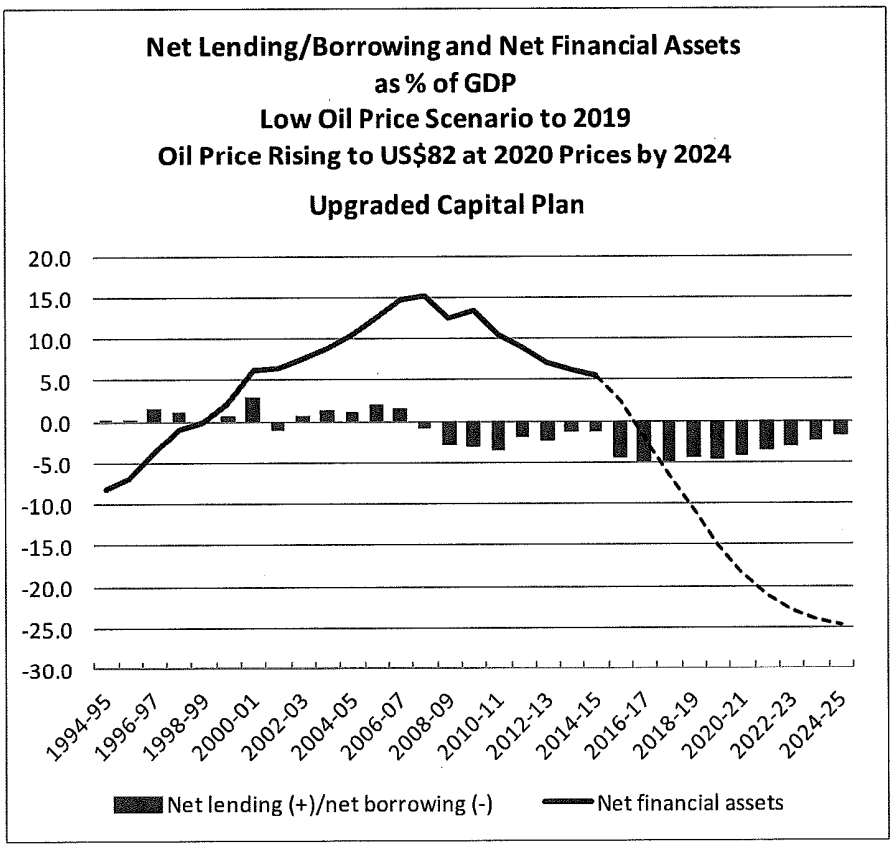
The economic context in which an upgraded plan such as illustrated above would unfold over the next five years would naturally depend on the evolution of oil prices. In the first benchmark scenario (low-to-mid oil price), this context is one in which: there is significant catch-up to do with respect to public capital; there would be little cost pressure at least up to 2019-2020 in the Alberta economy; capital needs for 2020-2024 would build up rapidly; there would be no market constraints on government borrowing as net debt with the upgraded plan would be at 15 percent of GDP by 2019-2020 (Chart 11), still less in relation to GDP than British

Columbia's net debt as at 2014-15; and interest costs on borrowing would be low.[19] As Chart 11 shows, net debt would stabilize about to 25 percent of GDP by the mid-2020s, a moderate level by provincial standards but one that would point to the need for the government to start taking measures to reduce net borrowing by the end of this decade.[20] Even in the low-low oil price scenario, some upgraded capital plan is warranted in view of the current capital needs and probably still warranted in light of the even somewhat reduced requirement to facilitate growth in the 2020-2024 time frame. In any event, the government needs to monitor closely oil developments and prospects and make adjustments to the capital plan if needed. For instance, if the government comes to firmly believe that oil prices will remain low over a full decade ahead, then it should take measures to reduce net borrowing, otherwise the debt dynamics would become unsustainable as net debt would not stabilize in relation to GDP. This might imply trimming the upgraded capital plan starting in 2018-19.

There is a case for upgrading the capital plan even further if either of the two higher oil price scenarios were to prevail because capital needs over the next 10 years would be even larger than in the low oil price scenarios.[21] While it is true that the higher capital expenditures might begin to exert some additional cost pressures in the Alberta economy by 2018 or 2019, the risk of this causing serious damage to private investment in those years is low. In any event, the amount and time profile of the upgrading would need to be carefully assessed in light of the evolving cost pressures in the economy as the end of the decade approaches.

[19] Consistent with a rather constrained growth profile for global demand through to 2019, interest rates are expected to remain "low for long" and therefore long-term interest rates on Alberta bonds should be low over the next several years.
[20] This 25% debt/GDP ratio reflects larger capital spending not only during 2015-2019 but also during 2020-2024 (the 2019 base level to which population growth and CPI inflation would apply during 2020-2014 is much higher in the upgraded plan). In fact, capital spending would rise from $7.7 billion in 2019-20 to $9.4 billion by 2024-25.
[21] Under the higher oil price scenarios the upgraded capital plan would bring the real capital/GDP ratio to only 15.3% by 2019-20.

Chart 11:



In setting the capital plan, it is necessary to balance the economic risk of having inadequate infrastructure to facilitate future output and population growth with the financial risk of incurring unsustainable amounts of debt to build unwarranted amounts of infrastructure. In my view, the expanded capital plan is warranted under both the first and second benchmark scenarios and the risks are evenly balanced. The financial risk of the expanded capital plan is clearly greater under the low-low variant price scenario (and the future growth constraint risk clearly lower). Nevertheless, even if one judges the low-low scenario highly likely, the expanded capital plan is warranted at least through 2017-2018 when cost pressures are lowest. (See Annex 2.1). Capital spending can always be slowed somewhat in 2018 and 2019 if the outlook for population growth and private investment weakens. The risk of constraining growth

through inadequate investment in public capital far outweighs the financial risk under the mid-to-high oil price variant. Thus, if one judges that this variant is most likely, even the upgraded capital plan may be insufficient, especially in the period to 2016-2018 when cost pressures are lowest. Considering the balance of risks, it would be wise for the government to adopt an upgraded capital plan similar to the one set out in Table 2.5, with the proviso that adjustments may be needed after 2017-18.

As of the end of August 2015, it now appears that oil prices in the near term (2015 and 2016) may well undershoot the prices in the first benchmark scenario. In this case, economic activity in Alberta for the remainder of this year, 2016 and the first half of 2017 may well be very weak and discretionary fiscal action may be warranted. In this case, accelerating the timing of the upgraded capital plan would be the best vehicle to deliver that discretionary fiscal action – especially if it were supported by federal support for investment in provincial and municipal infrastructure in Alberta. Among all the categories of government expenditures and revenues, additional infrastructure spending is the one with the highest fiscal multiplier, that is, the one which boosts real GDP the most per dollar spent or foregone by the government. Moreover, not only would additional infrastructure spending boost current real economic growth, it would have a positive impact in reducing constraints on future economic growth.

ANNEX 2.1

Table 2.6:

Working Assumptions about Real GDP and Population in Alberta

	Average % Growth		
	2015-2017	2018-2019	2020-2024
Low-low oil price			
Real GDP	0.1	1.9	1.8
Population	1.6	1.3	1.5
Low-mid oil price			
Real GDP	0.1	1.9	2.5
Population	1.6	1.3	2.0
Mid-mid oil price			
Real GDP	1.0	2.9	2.7
Population	1.8	1.9	1.9
Mid-high oil price			
Real GDP	1.0	2.9	3.0
Population	1.8	1.9	2.2

Sources: Alberta Treasury Board and Finance (2015-2017 and 2018-2019) and own assumptions (2020-2024)

PART III: CAPITAL COMPONENT OF GOVERNMENT PROGRAMS

General principles: Allocation

This section examines the practices for establishing capital budgets for infrastructure which supports the delivery of major public social programs (education, health care, security, etc.), programs which are financed through general revenues rather than specific user charges or fees. The capital to support these programs – schools, hospitals, flood and drainage infrastructure, etc – is thus generally financed from general revenues allocated to specific projects which best support the efficient delivery of those programs. For example the appropriate capital budget for schools must be determined in the context of the total budget allocation for delivery of educational services.

In principle, the allocation of a capital budget between projects should be based on cost-benefit analyses, the projects with the highest ratio of discounted benefits to costs being given priority over those with lower ratios. In practice, the difficulty of quantifying future social benefits largely rules out recourse to formal cost-benefit analyses for projects involving hospitals, schools, parks and flood control. The allocation mechanism must largely rest by necessity on an evaluation of infrastructure "needs" with regard to achieving particular goals and on a set of criteria to prioritize those needs. This is the way it currently works for schools and hospitals.

Currently infrastructure needs are twofold: (1) need for new expanded infrastructure to increase capacity to deal with a growing population or eliminate obsolescence in regards to functionality, and (2) the need for maintenance, repair and replacement of existing infrastructure. Because of implicit or explicit budget constraints in the past, there appears to be a considerable backlog of unmet capital needs in addition to the capital requirements to facilitate future growth and improvements. Thus, the 2015-2019 capital plan with respect to infrastructure to support services to the population needs to make provision for:

1) projects to deal with accumulated deferred maintenance, i.e. maintenance and normal replacement with respect to schools, hospitals and post-secondary institutions in Alberta which has inappropriately not been carried out in the past,

2) projects to address the need to accommodate past population growth and changes in the structure by age and location of population, projects which were appropriately deferred during the period of high private investment, and

3) projects to accommodate projected population growth and changes in the structure by age and location of population over the next five to ten years.

Infrastructure needs must be evaluated with a view to achieving the least-cost delivery of the services that they are designed to support. Total costs include not only capital costs (land, building and equipment) but also the operating costs and maintenance costs to be incurred during the life of a project. While the operating and maintenance costs should not normally be included in the capital plan, they should be part of the decision process in determining which design of an infrastructure project minimizes the total costs of delivering the services it would support. Thus, a first step in the evaluation should be to assess the substitutability of capital and current inputs (labour, energy, etc) in the delivery of the services needed and whether substitution of current inputs for capital would save total costs on a properly discounted basis. In some instances, it may be more cost effective to increase the hours of utilization of a facility than to expand this facility or undergo renovation rather than build a new facility. Likewise, an energy-efficient building may lower operating and maintenance costs to an extent that would more than compensate for higher capital costs. Thus, capital costs and the associated operating costs and maintenance costs should be jointly estimated with a view to choose a combination of capital, labour, and energy that minimizes total costs over the foreseeable future. To be sure, the range of technologies that can adequately meet specific service needs may be limited, but nevertheless it is important to take advantage of cost savings where possible.

In Alberta as in most provinces, individual ministries evaluate infrastructure needs and select projects deemed a priority for inclusion in the provincial capital plan. In principle, this selection should apply to projects that have been designed to support delivery of final services at the lowest costs after taking into account possible alternative combination of capital, labour and

energy in delivering the same services. It is therefore important that Alberta Infrastructure (AI), which has technical and cost expertise, provides technical advice and/or preliminary cost estimates on alternative choices before the design of a delivery system is finalized. Otherwise there is a risk that opportunities to deliver services at lower total costs to Albertans be ignored in the process.

It is also important that individual ministries consult with others and municipalities in the planning of projects. Often the most efficient and lowest overall cost projects are those designed to deliver multiple services. For example community health care, recreation, and education services can be efficiently and most effectively delivered from a multipurpose facility which efficiently utilizes other municipal infrastructure. Interagency and interdepartmental coordination is never easy but the benefits in the form of most efficient use of capital and maximum services to the public are large. In this regard, the infrastructure ministry can play a very useful role in facilitating interagency and provincial/municipal coordination.

Taking account of operating costs and maintenance costs matters not only for the optimal design of individual infrastructure projects but also for the selection of priority projects for the capital plan. It is important that the government have a clear picture of the total costs of the various infrastructure projects, including associated operating and maintenance costs, in order to make enlightened choices between the infrastructure projects themselves and between infrastructure projects and spending on non-capital programs within an overall expenditure constraint.

General principles: Financing

The total "costs" of infrastructure projects to be financed from current and future general revenues, from drawing down net financial assets (NFA) or from market borrowing at any given time should reflect:

- Expansion of infrastructure capital stock to meet currently unmet needs (lack of capacity or obsolescence of capital in view of new, different needs), upgrade technology and accommodate growth in future requirements for services. Such expenditures create net new capital assets which provide services over long periods of time.

- Future operating costs associated with making use of the infrastructure capital to provide services, mainly in the form of current spending on labour, energy, materials and on interest on debt; such spending does not increase capital assets.

- Future maintenance costs, which correspond to the costs associated with offsetting the depreciation or deterioration of capital and which involve replacement investment; spending on maintenance at best preserves capital assets but do not add to them on a net basis

Both lenders and the public can accept the rationale for governments to borrow to expand the quantity and technological quality of public infrastructure to facilitate future growth of output and revenues. Both lenders and the public can view borrowing for capital investment as "acceptable" (as long as "returns" on projects exceed the costs). Deficits incurred to finance growth-enhancing public capital are generally acceptable to financial markets and economic analysts as long as debt/GDP ratio remains reasonably low.

Because the public and market acceptability of deficits and debt depends on the perception of the purpose for which borrowing was undertaken, it is essential that government be clear and transparent that its "capital plan", which needs to be financed by borrowing, normally includes only those expenditures which are truly for capital expansion and exclude those expenditures which are for operating, repair, maintenance and normal replacement. However, past governments have provided insufficient funding to cover repair, maintenance and normal replacement. Thus, at the moment there is a very substantial volume of deferred repair, maintenance and replacement that needs to be done.[22] The government should quantify the backlog and attempt to work it down very substantially over the next three years when bid costs should be significantly lower than in the recent past. It would be appropriate to include borrowing for this accumulated deferred maintenance in the capital plan for the next three years while ensuring that newly accruing maintenance expenses for infrastructure are included in future operating budgets.

[22] In particular, transport, health, advanced education and education departments have indicated that there is substantial work to be done. I have not attempted to quantify this amount.

Because the distinction between capital and operating expenditures has not always been observed in the past in Alberta,[23] in my view the credibility of this distinction in official statements is, at the moment, probably weaker than it ought to be. Going forward, I thus recommend that Alberta rigorously adhere to the distinction in order to maintain credibility in financial markets and preserve the trust of Albertans.

Borrowing to Finance the Capital Plan

When borrowing in the market to finance the capital plan, it is appropriate for the government to issue long bonds (30 or even 50 years duration). First, this long-term financing matches the expected life of most schools, hospitals and other infrastructure facilities. Second, the term premium at the moment is very low so the current extra interest cost of extending duration is low by historic standards. And third, long duration financing greatly reduces refinancing risk, a factor which may be important if oil prices stay low for long.

In a situation of slack in the economy pending an eventual return of oil prices to levels that support solid growth in oil production and investment, as implied by the low-to-mid, mid-mid and mid-to-high oil price scenarios, it may be appropriate to rely on borrowing in the market to finance not only a strong program of new capital expenditures, but also a portion of immediate operating expenditures.[24] This would generate a "net borrowing" position larger than otherwise for the government of Alberta but this strategy would have two merits: it would help to meet the solid expansion of demand for services that has occurred and is to be expected in the future, and it would refurbish and modernize infrastructure when costs are cyclically lower and long-term borrowing costs at an all-time low. In a scenario of persistently low real oil prices over the next decade (low-low scenario), it would be appropriate to rely on bond borrowing to finance a strong program of capital expenditures, but only if the government recognizes that it would eventually have to put in place measures to reduce total net borrowing.

[23] And in other jurisdictions as well.
[24] See section on stabilization on page 6.

Schools

The procedure for selecting priority projects regarding schools rests in part on the community expertise of local school boards, but also most importantly, on rational criteria for gauging infrastructure needs, and on oversight and final selection by the Education ministry. Local school boards determine and prioritize lists of capital projects based on a set of criteria, including health and safety, building condition, utilization rate, enrolment projections, education program delivery and impact, and additional criteria. The lists are submitted to the Education ministry annually through the Capital Planning Initiative. The ministry reviews the projects to ensure that they truly meet the criteria that should be applied to schools and set priorities among them for the province as a whole. Alberta Infrastructure (AI) should provide detailed costing advice during this review process at the board and ministry levels. In the end, AI does currently provide cost estimates for these priority projects before the final set is submitted to the Treasury Board. This selection procedure, especially if AI provides advice at the earlier stage, is appropriate to ensure that the community needs are rationally assessed.

Infrastructure needs for the school sector are substantial as investments in the past have not kept pace with the growth in requirements set by the rapid expansion of population. The result has been a pent-up demand for new schools and modernization. At the same time deferred maintenance for schools has built up. It is important that the needs for both infrastructure and maintenance be evaluated on the basis of common criteria for meeting the future needs for education services, account taken of the fact that delaying maintenance increasingly raises the costs of rehabilitating facilities.

Going forward, three considerations should come into play. First, new configurations of schools are required to respond to the functional needs of education in the twenty-first century. Replacement facilities should not simply replicate the design and functionality of old schools. Second, the construction of new schools should take advantage of modularization inasmuch as standard components could be built more rapidly and at lower costs in manufacturing plants and assembled easily on site.[25] Third, multi-task facilities, grouping together school, recreational facility, healthcare clinic, etc., should be considered when land is scarce and community needs

[25] The importance of modularization/standardization to reducing cost of school buildings was made to me several times in my consultations. A.I. and the Ministry of Education are in a position to enforce standardization on local boards and should do so.

are multiple. Planning would have to be done by school boards in collaboration with municipalities and overseen by the Education ministry in collaboration with the ministry in charge of the Municipal Sustainability Initiative.

Post-Secondary Education

In the PSE sector in Alberta, infrastructure is needed to support continued enrolment growth and continued research growth requiring laboratories and equipment. Not only is capital spending required for capacity expansion and functional renewal of existing facilities, but so are expenditures for adequate infrastructure maintenance. In addition, deferred maintenance for the PSE sector is significant and needs to be addressed before the risks to the quality of teaching and research and to the health, safety and well-being of staff and students get too high. As far as I can judge, the large PSE institutions have sensible plans towards meeting infrastructure needs and addressing deferred maintenance.

Hospitals

The procedure for selecting priority projects regarding hospitals before they reach Treasury Board for submission in the provincial capital plan is fairly elaborate and well conceived. Alberta Health Services (AHS) produces an annual Multi-Year Facility Infrastructure Capital Submission to the Ministry of Health, which identifies all unfunded priority health capital needs. In making its selection of priority needs, AHS takes account of the quality of the patient/client experience to be derived from particular infrastructure (acceptable, accessible, etc.), strategic demand as it relates to the projected needs of patients/clients and care givers (population growth, changes in best practice, utilization rates, etc.), and risks to future delivery stemming from physical deficiency and functional obsolescence existing facilities. The highest priority projects are those involving both high strategic demand and high risk, then those involving high (low) strategic demand and low (high) risk. The Ministry of Health reviews the AHS submission, get cost estimates for priority projects from AI and submit a final list of priority projects to the Treasury Board for possible inclusion in the provincial capital plan. At

least on paper, the whole process for identifying and selecting health facility projects seems appropriate.

The problem in Alberta, as in other provinces, is that hospitals take on iconic stature in their local communities. From all sides there are political pressures in communities to have their own facility and that the facility be the biggest, best and most prestigious one possible. In smaller centres, acute care facilities are seen as "essential to the economic viability of the community" and resistance to closing inefficient acute care facilities is fierce. Thus, local pressure has led in the past to over-promising to build very expensive tertiary and quaternary care facilities while neglecting the provision of local clinical and chronic facilities. It has also led to the commitment to build a facility before planning has been fully completed and well before any detailed costing has been assessed. The result has been a large underestimation of costs and the eventual crowding of other valuable projects out of the capital plan.

If Albertans are to get quality health care facilities at a reasonable cost, the total process for planning and selecting health infrastructure projects must be rigorously adhered to. While some increase in capital expenditures for health care facilities is warranted in my view at the present time, much more rigorous adherence to the process of analyzing needs, planning, costing and finally committing funds to projects is even more important. While the final selection of competing projects for the provincial capital plan is of course a political prerogative, such prerogative should not be exercised until projects have been properly scoped and their capital and operating costs properly estimated.

Like schools, some hospitals have accumulated a large amount of deferred maintenance. It is important that the needs for both infrastructure and maintenance be evaluated on the basis of common criteria for meeting the future needs for services by patients/clients, account taken of the fact that delaying maintenance increasingly raises **the costs of rehabilitation.**

Water Control

Investment in infrastructure to capture the benefits of one of Alberta's most important resources – water – and to control its destructive power should be an important

element in the Government's capital plan. Some elements are relatively cheap and effective such as the building of a real-time water monitoring system or the funding of watershed protection and planning through Watershed Planning and Advisory Councils (WPAC) and the optimizing of existing reservoirs in the Bow, Oldman and other river basins. Others are more expensive such as the building of appropriate flood control facilities for Calgary and storm drainage systems for Edmonton. It is appropriate to consider the costs of establishing these systems and facilities as a capital expenditure. It is also appropriate to make these capital investments now while engineering services and construction capacity are available.

The selection of flood control projects must be based on an evaluation of their benefits in terms of the public and private costs that could be avoided by appropriate drainage or flood control relative to the costs of building, operating, maintaining and financing the required infrastructure. The benefits would be partly related to the size of the population, the value of the property and the amount of production at risk. They would also depend on the frequency and severity with which floods might occur during the life of the infrastructure, if this infrastructure was not in place. This may be very hard to predict with confidence. In any case, prioritization of projects for flood control should not be based solely on assessment of risks for specific areas, but also on some evaluation of the benefits from flood control for these areas, however imperfect such an evaluation may be.

A related issue stemming from the uncertainty regarding the severity of future floods is the degree of insurance against damages that flood control projects should provide. Presumably the higher the level of protection the higher the **actual** costs of flood control but also the higher the **potential** benefits of flood control as the time horizon lengthens. One level of protection that is currently considered a North American standard is the "100-year" level of flood protection, which could handle a flood whose severity occurs only once every one hundred years. Given recent global experience the traditional "100-year" event is now likely to be experienced more frequently and hence the premium to buy protection against such an event has markedly increased. If this is the level of protection that flood control projects aim at, then the costs of such protection for a given area over the life of the projects must be gauged against the potential benefits of flood control based on current probability distributions of flood frequency and severity (up to once-in-100-years severity) over the life of the projects.

There is now a greater awareness of the tail risks related to weather or climate, which is indeed reflected in higher property insurance costs. Reducing such risks would support growth in property values and economic prosperity more generally. Because the cost of such protection (in Calgary and Edmonton in particular) is much greater than was traditionally assumed, the Government of Alberta should consider partnering with local authorities to finance at least the engineering and cost/benefit studies as part of the current capital plan. Upgraded protection increases the attraction of Alberta as a location for business and hence contributes to future economic growth and diversification for the province as a whole.

PART IV: PUBLIC USE INFRASTRUCTURE

Unlike schools and hospitals which constitute only an indirect component of government provided services (education and health care), public use infrastructure – roads, sewers, airports, etc – is the direct service provided to the public by governments. Thus, the decision about proceeding on any given project (or on a regional transportation or water plan) can be made using conventional benefit – cost analysis. The direct "beneficiaries" of the investment in a project can generally be identified and the value of the improved road or water service from the project inputted. While the imputation of value is always subject to a fairly wide margin of error, rather good sophisticated techniques to estimate benefits have been widely used around the world. The future values of the enhanced services from the project can then be discounted at an appropriate rate to compare with today's cost of undertaking the project and a benefit-cost ratio calculated. When benefits significantly exceed the costs, there is at least a prima facie case for government to undertake the project.

The prioritization of **highway** projects currently proceeds from a ranking of their benefit/cost ratios. The benefits of a project correspond to the reductions in collision cost, travel delay and vehicle operating costs that are made possible by implementing the project whereas the costs correspond to the related construction and maintenance expenditures. This is a sensible approach although not necessarily an easy one to apply, at least in the estimation of the benefits. The Ministry of Transportation plans to make use of a spatial economic model to estimate the economic impacts of highway investments for Alberta and relevant regions over a horizon of several years, with a view to gaining assistance in priority setting, programming and delivery of highway infrastructure. This seems to be a sensible way to go forward, not least because the planning of a highway project could then take account of the feedback of the economic development resulting from the implementation of this project on the need for additional transportation infrastructure.

The benefit of a particular highway or road network project clearly accrues to individual users in terms of time and fuel cost savings to get from A to B and to commercial users in terms of savings on cost of moving goods. There are also some harder-to-estimate spillover benefits to non-users (network benefits) in terms a more vibrant economic climate, cleaner air, higher

property values, etc. While these general spillover benefits are significant and in a diffused way make an important contribution to overall economic growth in Alberta, the most visible and important benefits from an improved road transportation and public transit network accrue to the direct users. However, the costs of building and maintaining road and highway networks are not paid for by the direct users. These costs are generally paid for out of general revenues which are unrelated to the value to the users. The use of municipal roads and provincial highways is provided "free of charge" to the users while competing forms of transportation (rail, air, and in part municipal transit) must be paid for by the passengers or shippers.[26] This misalignment of taxation for and benefits from road and highway infrastructure causes two problems:

1) both the operating and capital budgets of provincial and municipal governments for roads are under pressure (and will be under even more pressure as shown in Part II) with the result that highways and municipal transit networks are insufficiently funded relative to their contribution to value to users, productivity, and

2) funding is allocated somewhat inefficiently as excess capacity is created in order to meet peak demand needs.

Appropriate direct pricing of the use of highways and roads to users to cover at least part of the operating and capital costs could mitigate both of these problems by raising additional revenue and by incenting a more rational use of roads.

Road tolls (especially if the charge was higher during rush hours) would reduce congestion costs through a financial incentive to use other modes of transport and avoid periods of high tolls. Congestion costs refer to the value of the time lost on the road (and increased direct costs) because of congested infrastructure. Each trucker or driver caught in a congested infrastructure incurs congestion costs and at the same time imposes congestion costs to other truckers/travelers by his/her very presence on the road. Road tolls would also raise the cost of driving in major cities, thus encouraging people to use public transit and making it feasible for transit authorities to charge higher fares.

[26] This is not strictly true as motive fuel taxes and license fees are borne by the users of roads and the cost of municipal transit is only partially covered by revenues from the farebox.

User fees could have two components: an "entry" component that helps cover the fixed costs of building the transportation infrastructure and a variable component that would be related to the distance traveled and the time of day in reflection of the usage and congestion costs associated with any specific trucker/traveler.[27] Electronic toll collection technology exists to program such structured fees and charge commuters/travelers accordingly with a minimum of fuss. This technology requires equipping vehicles with transponders which trigger electronic toll metering. Charges incurred are then automatically billed periodically just like charges for electricity or gas. This technology has been applied successfully elsewhere and could be applied in Alberta.

As suggested by Bazel and Mintz (2014), the adjustment costs to truckers/travelers arising from new user fees could be minimized by initially imposing user fees only with respect to new or upgraded infrastructure, while exempting older networks. Thus, the Alberta government should give serious consideration to setting user fees for the Calgary and Edmonton ring roads and the Northeast Alberta Strategic Project when they are completed. Cities could begin by imposing tolls only on major upgrades. Charging for the use of critical infrastructure would have two important advantages: it would free financial resources for investment in other socially desirable capital projects and would result in a more efficient use of infrastructure.

Other advantages of introducing an electronic toll system for new controlled access highways is that it would provide an opportunity to raise revenues to finance municipal construction of connector roads to maximize the value to users of new provincial controlled access highways and would improve the ability of governments to finance new or upgraded roads. Finally, an overriding advantage of introducing user charges for new or upgraded highways is that by forcing highway planners to make estimates of both revenue potential as well as construction costs, Cabinet can make an assessment of the strength of the economic rationale for a new project.

[27] For a useful discussion of user fees for urban infrastructure, see Bazel P. and J. Mintz, "The Free Ride is Over: Why Cities, and Citizens, Must Start Paying For Much-Needed Infrastructure", University of Calgary School of Public Policy, Vol. 7, Issue 14, May 2014. This is only one of many excellent articles and books on the usefulness of charges (including congestion charges) to pay for infrastructure.

Alternative modes of financing of public use infrastructure

In discussing the capital plan in Part II and Part III, it was implicitly assumed that the financing of public capital spending would come from government revenues, government market borrowing or drawdown of government net financial assets. There is of course a fourth mode of financing for public use infrastructure: special investment vehicles that would build and manage such infrastructure, borrow to finance it and charge user fees to generate revenues. The potential advantage for the government to farm out infrastructure building and financing to the private sector is not to shift public capital spending off budget, but rather to have infrastructure services being offered more efficiently and at lower costs to users than the government could do. Borrowing costs would be higher for the private infrastructure owners than for the government, but **if** this differential is more than compensated by lower operating costs with the private owners, then there is a case for relying on the private sector to supply public use infrastructure, at least on one condition. This condition is that risks are truly assumed by the private operators along with ownership of the infrastructure.

PART V: SUMMARY AND RECOMMENDATIONS

This paper has examined the factors which bear on the establishment of the capital plan for the Government of Alberta for the period from 2016 to 2019. The main emphasis has been placed on the factors that should determine the overall size of the plan over these four years in the context of the economic and fiscal outlook to 2024-2025 (Part II), the mix of capital investment to support delivering services to Albertans and the methods of financing the capital investment.

The basic principles that should guide the capital plan as set out in Part I of the paper relate to the overall objective of achieving growth and economic stability consistent with distributive fairness. While these principles apply to all provincial jurisdictions, Alberta is close to unique as it faces a particular challenge in stabilizing the economy because of the volatility imparted to both economic output and government revenues by the volatile North American price of oil and gas, volatility over which the Government of Alberta has absolutely no control.

This feature has implications for the application of the principles of good capital budgeting to the province of Alberta over the next two years: (1) capital plan should take into account the risk of exceptionally large volatility in the medium and long term economic outlook and hence volatility in the public infrastructure needed to facilitate future growth; (2) government spending on capital should be greatest when government resource revenues are lowest in order to take advantage of lower bids for projects and should be lowest when revenues are strong to avoid putting upward pressure on costs of private sector investment; and (3) the Government of Alberta should be drawing down net financial assets or borrowing from the market to finance capital investment when resource prices are low and when interest rates are at cyclical lows.

At the same time, as in other jurisdictions, operating expenditures should normally be financed by general tax revenues over the course of the cycle – revenues generally exceeding expenditures at the top of the cycle (surplus) and falling below operating expenditures at the bottom of the cycle (deficit).

There is no universally accepted benchmark for the appropriate level of infrastructure capital to support economic growth and the provision of public services. However, I think that a public capital to GDP ratio (in real terms) of 16% (the interprovincial average) is a reasonable benchmark to judge the adequacy of the Alberta capital plan over the period to 2019. To meet the 16 percent benchmark by 2019-2020, the Alberta government would need to add an average of $1.6 billion per year from 2016 to 2019 to the March 2015 capital plan proposed by the previous government. But in drawing up the capital plan to achieve this 16 percent target, the government must take into account the uncertainty about the outlook for economic and population growth over the decade to 2025 and consequently the revenue outlook in view of hard-to-predict movements in the price of oil.

To deal with this uncertainty, in Part II four scenarios for the evolution of oil prices were developed (Table 2.1) which bracket the reasonable range of possible outcomes. On the basis of these four scenarios, working assumptions about real GDP and population growth (Annex table 2.6) were developed based on the Government of Alberta's simulations and parameters imbedded in current economic models of the Alberta economy. Using Alberta Treasury Board and Finance revenue simulations based on these assumptions, assumed rates of growth of operating expenditures to 2024-2025 (Table 2.2) and the March 2015 capital plan put forward by the previous government (extended to 2024 at the growth of population and CPI), fiscal balances to 2024-2025 were simulated (Table 2.3). On the basis of the economic and financial simulations for the four oil price scenarios, I developed a judgement concerning the advisability of proceeding with the previously planned capital spending and/or upgrading the plan to meet the 16 percent capital/GDP benchmark by 2019-2020 (Table 2.4).

Under the low-low oil price scenario, the March 2015 plan would (as in all scenarios) allow a catch up to past needs and probably accommodate projected future growth. It would put no pressure on costs to 2019, BUT presents financial risks in the future. The March 2015 plan is probably "affordable", but quite risky as net debt would reach 26% of GDP by 2025 and would not stabilize (Table 2.3). Under this scenario fully upgraded capital plan would probably not be absolutely necessary to meet future requirements and would increase future financial risks.

Under the benchmark low-mid oil price scenario, the March 2015 plan would probably barely accommodate future growth. It would put no pressure on costs to 2019. While it presents some future financial risks, it is "affordable" as net debt would only reach 20.5% of GDP in 2023-2024 and be stable thereafter. Under this scenario, an upgraded capital plan (or something close to it) is recommended, as long as the government makes clear that future fiscal adjustments might be needed to mitigate financial risks as net debt would rise to about 25% of GDP (but stabilize there) (Chart 11).

Under the benchmark mid-mid oil price scenario, the March 2015 plan would not be fully adequate to accommodate future growth and an upgraded plan is clearly warranted. The upgraded plan would put some pressures on costs by the end of the period, but these are likely to be fairly moderate. The March 2015 plan is clearly "affordable" as net debt/GDP would only rise to about 12% by 2025 and would have stabilized. The upgraded plan under this scenario is also "affordable" although the government would be wise to signal that some fiscal adjustments might be required in the future to mitigate financial risks.

Under the mid-high oil price scenario, the March 2015 plan is very unlikely to be adequate to accommodate future growth and, at a minimum, the upgraded plan is definitely required. This upgraded plan is clearly "affordable" as the debt GDP ratio peaks at 10.5% in 2022-2023 and falls thereafter.

In light of this overall assessment, it is recommended that the government upgrade the Capital Plan by an amount sufficient to bring the ratio of real net public capital stock to real GDP closer to the 16 percent provincial benchmark ratio by 2019-20 as set out under the low oil price scenarios in Table 2.5. This upgraded plan clearly entails some financial risks, especially if the low oil price scenarios materialize. For this reason, it is also recommended that the government only commit to the upgraded capital expenditure plan of about $6.8 billion in 2016-17 and $7.4 billion in 2017-18. It should make any further increases contingent on the future evolution of economic growth.

Borrowing will be required to support the existing or upgraded capital plan. This is entirely appropriate. It is recommended that such borrowing be in the form of long term debt (30

year or even longer) to take advantage of historically low long term interest rates and match closely the useful life of public capital.

Finally, I would note that the assumed increases in operating expenditures assumed in this assessment (population growth and CPI and 1%) are at the low end of what the government can reasonably expect to achieve especially if growth is as weak as implied by the low oil price scenario. If this constrained operating expenditure growth is not achieved, some further increase in general taxation may be required or net debt may set on an unsustainable path.

In this report, I have concentrated on assessing the overall adequacy of the capital plan, the overall financing requirements for the plan, and the financial risks these requirements imply. I have put less emphasis on a detailed assessment of individual components of the plan in Parts III and IV, in part because in almost all areas there appears to be a significant backlog of unmet capital requirements. What I have tried to do in Part III is to set out some principles and procedures for prioritizing projects in the capital budgets for infrastructure which supports the delivery of education and health and flood protection services – all services which are financed out of general taxation revenues. In Part IV, I have put most emphasis on the potential for the use of user charges to finance and promote the optimal allocation of capital expenditures on transportation infrastructure.

What is clearly evident is that the Government of Alberta has had a strong bias to under-provide for maintenance, refurbishment and normal replacement of capital. This has led to a backlog of deferred needs and a continued call on the capital budget to meet what are really operating expenditures which should be included in operating budgets and financed by general tax revenues or user charges. This biased procedure leads to an inefficient allocation of resources and, over time, higher costs to the taxpayer. In my view, it also seriously undermines the credibility of the "capital plan" and thus the credibility to lenders of the government as a prudent fiscal manager. Thus, my recommendation is that procedures be put in place over the next few years to ensure that in the future departments and agencies include these expenditures in their annual operating budget submissions. However, on a "one-time" basis, the government should include funds to clear at least part of the backlog in its new four-year capital plan.

It is also evident that some decisions to proceed with capital projects have not always taken into account the ongoing requirements to support and maintain capital. Therefore, there has been a bias (perhaps most evidentially in the hospital sector) to build "iconic projects" which do not necessarily meet the overall service requirements. In section III, I have made very modest suggestions in this regard about how procedures might be improved to achieve greater allocative efficiency and effectiveness of capital investment.

In Part IV, I briefly examined the case for increased user charges for the use of roads and highways to improve allocative efficiency. There is a strong case for the use of electronic tolling mechanisms for roads and highways not only to improve allocative efficiency but also to generate revenues to support the expansion and improvement of the highway (and transit) system to facilitate future growth.

ANNEX: LIST OF CALLS, MEETINGS AND MATERIALS CONSULTED IN PREPARATION OF THIS REPORT

Meetings and calls

June 2015

- Meeting with the Premier and Minister Mason
- Meetings with Richard Dicerni, Brian Topp, and officials at Infrastructure and Treasury Board
- Calls to John Simpson (Cana), David Livingston (Ontario)

July 2015

- Meetings with Minister Mason and Minister Ceci
- Meetings with Glen Hodgson (Conference Board), Ken Uebelein (AIMCo), Paul Verhesen (Clark Builders), Mayor Nenshi and staff (City of Calgary), Jeff Lehrman (Chevron), John Simpson (Cana), Nancy Southern (ATCO)
- Meetings with officials of various departments: Transport, Treasury Board, Infrastructure, Education, Municipal Grants, Advanced Education, Executive Council, AHS
- Calls to Greg Stringham (CAPP), Chris Ragan (Ecofiscal Commission), Mayor Iveson (City of Edmonton), Kim Sturgess (Water smart), Jim Dinning (CWB) and Minister Phillips (Environment)

August 2015

- Meetings with Ministers Ceci, Mason and the Premier
- Meetings with officials from Treasury Board, Finance, Infrastructure, Health, and Executive Council

- Meetings with: Mayor Iveson and staff (City of Edmonton), Don Mazankowski, David Turpin (University of Alberta)

September / October 2015

- Further calls with officials at Infrastructure, Treasury Board and Executive Council

Papers/Submissions Received

Ecofiscal Commission: The Case for Congestion Pricing

CAPP: Crude Oil Forecast, Markets and Transportation

Alberta Construction Association: Infrastructure Investment

ARHCA: White Paper on Transportation: Infrastructure Debt in Alberta

Energy Services Association of Canada: Submission

Watersmart: Discussion Brief on Critical Water Infrastructure for Alberta

Other Recent Papers Consulted

IOSCO: Market Based Long Term Financing Solutions for SMEs and Infrastructure (September 2014)

B. Dahlby and M. Smart: The Structure and Presentation of Provincial Budgets

McKinsey and Company Infrastructure Index (June 2015)

CSLS: Generating Inclusive and Sustainable Economic Growth, Chapter 2 (September 2015)

Intelligence MEMOS

From: David Dodge

To: The Minister of Finance

Date: May 24, 2016

Re: INFRASTRUCTURE SPENDING- PLAN NOW NEEDED

In Budget 2016, you expressed your intent to invest more than $120 billion in infrastructure over 10 years. Phase 1, totaling $11.9 billion, spreads spending over a wide range of objectives primarily in the next two years. Phase 2 promises to deliver more than $100 billion over the remaining eight years, aiming to achieve "a more modern, cleaner economy; a more inclusive society; an economy better positioned to capitalize on the potential of global trade." (p.87).

By necessity, in Phase 1 you will mostly finance municipal and provincial off-the-shelf projects with the aim of boosting aggregate demand in the short term. The Phase 1 goals of improving quality of life in cities, supporting a green economy, and strengthening communities are not primarily aimed at enhancing growth prospects in the longer run, although no doubt some of this spending will contribute to that. For growth, it is imperative that in Phase 2 you put emphasis on the types of infrastructure that most contribute to private sector productivity growth. That would include gateway, transport, communications and energy projects.

Raising aggregate productivity growth is important if Canada is to preserve real income growth in the future. Adverse demographics are leading to lower potential growth over the next decades and a return to high resources prices cannot be counted on to significantly offset the unfavorable effects of aging on real income. Improved productivity growth is the only mechanism to do that for the foreseeable future. A key way by which governments can promote productivity growth is by investing in the type of public infrastructure that most enhances private sector productivity and thereby achieve real income gains for the middle class.

To provide advice on infrastructure investment and manage the federal contribution, Canada needs an independent expert institution, perhaps on the model of Infrastructure Australia. Its goal would be to monitor progress, assess results and update a long-term plan for achieving efficient and effective infrastructure support to productivity growth. In Budget 2016 you pointed in this direction: "New institutions could provide Canada an opportunity to improve infrastructure management across the country..." (p. 88).

Productivity enhancing infrastructure requires increased funding, not only for new construction but also for ongoing debt service, operation, maintenance, and renewal. Construction can appropriately initially be funded through borrowing, but to generate ongoing funding, new infrastructure projects should be designed to generate a current revenue stream from the services they provide, directly through user charges where feasible. These revenues would not only be used to defray the ongoing costs but equally importantly would provide an indication of commercial viability. This would give the government the option of selling the assets to private investors in the future. The proceeds from those sales could be recycled to provide funding for future infrastructure enhancements, thereby limiting the need for continuing government borrowing for that purpose.

In your next budget, you need to provide a real plan for productivity enhancing infrastructure investment, and set out the institutional arrangements to manage that investment.

David Dodge is the former Governor of the Bank of Canada and Chairs the National Council of the C.D. Howe Institute.

SCENARIO NOTE

Meeting between Deputy Minister of Infrastructure and Communities and Yves Desjardins-Siciliano, President and CEO of VIA Rail Canada

Date/Time: **Location:**	November 10, 2017, 9:45-10:30 a.m. 427 Laurier Ave. West, DM Boardroom
Subject:	Meeting Deputy Minister Kelly Gillis
Participants:	Mr. Yves Desjardins-Siciliano, President and CEO of VIA Rail Canada (see biography **Annex A)** Ms. Kelly Gillis, Deputy Minister, Infrastructure Canada Ms. Yazmine Laroche, Associate Deputy Minister, Infrastructure Canada Mr. Marc Fortin, Assistant Deputy Minister, Program Operations Mr. David Murchison, Assistant Deputy Minister, Policy and Results Mr. Glenn Campbell, Assistant Deputy Minister, Canada Infrastructure Bank Transition Office

Departmental Objectives

The purpose of this meeting is to introduce you to Yves Desjardins-Siciliano. It will be an opportunity to discuss the challenges and opportunities facing VIA Rail, [redacted] and opportunities arising from a number of public transit projects in the Montreal and Toronto areas.

Stakeholder Objectives

Mr. Desjardins-Siciliano would like to brief you on two initiatives underway at VIA Rail: 1) a proposal to renew the fleet of trains for the Quebec City-Windsor Corridor; 2) a project to implement High-Frequency Rail (HFR) in the Toronto-Ottawa-Montreal Corridor, and possibly between Montreal and Quebec City. He may raise questions about the Investing in Canada Plan generally, and specifically about the Government's commitment to invest in the Montreal *Réseau electrique metropolitain* (REM) light rail project, and possible investments in major public transit projects in the Greater Toronto and Hamilton area, by either Infrastructure Canada or the Canada Infrastructure Bank, and implications for VIA.

Context/Overview

VIA Rail continues to face a challenging operating environment. According to Transport Canada, routes in VIA's busiest market and most densely populated region of Canada continue to perform well and demonstrate potential for growth; however, an ageing fleet and congestion in the Quebec City – Windsor corridor constrain VIA's capacity and long-term viability. VIA Rail is not alone in experiencing these problems; in comparator countries, passenger rail operators generally do not generate sufficient revenue to cover operating and capital costs and, as such, are subsidized in one way or another. [redacted]

[redacted]

INFC considerations

[redacted]

[redacted] (see **Annex B** for illustrations of current and planned operations by VIA and public transit operators in Montreal and Southwestern Ontario).

[redacted]

[redacted]

With respect to projects in the Toronto area, Metrolinx is planning the future expansion of its operations, known as Regional Express Rail (RER). This expansion would entail twice the number of train trips during weekday rush hours and four times the current number of trips outside the rush hour. System improvements would include electrification, new train control systems and a new fleet. At full implementation, trains will operate up to every 15 minutes in both directions; with all-day service using faster electric trains. Non-electrified extensions of service are also planned to Niagara Falls (south), Guelph/Kitchener (west), Bowmanville (east), and north of Richmond Hill.

[redacted]

VIA Rail's proposal for HFR and its publicly stated plans for additional regional service linking Toronto with Southwestern Ontario would have a large impact on current and future capacity of the shared network and facilities.

[redacted]

Points to Register

- I appreciate the opportunity to meet with you and discuss issues and opportunities facing VIA Rail.
- Through Budget 2017 and the Investing in Canada Plan we are making historic new investments in infrastructure to build the cities of the 21st century and provide communities across the country with the tools they need to prosper and innovate.
- We are making good progress in delivering on the Plan's commitments. The Canada Infrastructure Bank will soon be in a position to consider projects. We are also aiming to sign flow-through agreements with provinces and territories by March 2018. These agreements would establish the parameters for the provision of $33.1 billion over the next 11 years.

[redacted]

- With respect to the REM, I understand that VIA is working closely with Transport Canada and CDPQ to try to resolve potential challenges arising from increased use of the Mount Royal Tunnel. From your perspective, do you see these discussions resulting in a workable solution for all parties? Can the Tunnel accommodate the envisaged frequency that VIA and CDPQ foresee for their respective projects?

Additional points on the Canada Infrastructure Bank (if asked)

- The Canada Infrastructure Bank will be responsible for investing at least $35 billion over 11 years with a minimum investment of $5 billion in public transit.

- The Bank will make investments in infrastructure projects that generate revenue and are in the public interest. A key consideration for the Bank will be whether the project attracts or "crowds-in" private sector capital that would not have otherwise been invested in public infrastructure.

- The Bank is on track to begin discussions with partners and potential investors in late 2017.

Attachments:

Annex A – Biography for Yves Desjardins-Siciliano
Annex B – Maps of VIA and public transit networks in Greater Montreal and Southwestern Ontario

Yves Desjardins-Siciliano

President and Chief Executive Officer, Via Rail

Prior to his appointment, Mr. Desjardins-Siciliano was the Corporation's Chief Corporate & Legal Officer and Corporate Secretary since 2010. An experienced lawyer and seasoned executive, he is a member of the Quebec Bar Association.

He holds a law degree (LL.B.) from l'Université de Montréal and he completed Graduate Studies in Law (GSD) at McGill University. He also has a designation from the Institute of Corporate Directors (ICD.D).

With proven experience, he has held several positions in the past in legal, regulatory and government relations, business and corporate development, marketing communications and finance. In Montreal and Toronto, he worked for private and publicly held companies, in the information technology, telecommunications, marketing and entertainment industries. Past President of the Canadian Bar Association, Quebec Division, Mr. Desjardins-Siciliano was also Chief of Staff to the federal Minister of Labour and Minister of State for Transport from 1989 to 1991.

ATIA - 20(1)(b)
ATIA - 20(1)(c)

ANNEX B

MAP OF VIA ROUTES (CURRENT AND PROPOSED HFR) AND RÉSEAU ÉLECTRIQUE MÉTROPOLITAIN (REM) NETWORK IN MONTREAL

Source: Transport Canada

ATIA - 20(1)(b)
ATIA - 20(1)(c)

Annex B

Potential Service Overlap – Southwestern Ontario

Source: Transport Canada

SCENARIO NOTE

Meeting between the Deputy Minister of Infrastructure and Communities and Universities Canada

Date/Time:	Wednesday, November 29, 2017, from 4:00 p.m. to 4:45 p.m.
Location:	427 Laurier Avenue West, 10th floor, Ottawa
Subject:	Meeting with Universities Canada
Participants:	Ms. Kelly Gillis, Deputy Minister, Infrastructure Canada Ms. Yazmine Laroche, Associate Deputy Minister, Infrastructure Canada Mr. Paul Davidson, President, Universities Canada Ms. Pari Johnston, Vice-President, Policy and Public Affairs, Universities Canada (biographies in **Annex A**)

Departmental Objectives
The purpose of this meeting is to introduce you to Paul Davidson and Pari Johnston, respectively the President and Vice-President of Universities Canada. It will also allow you to discuss Universities Canada's objectives for campus infrastructure improvements, as well as opportunities to leverage funding for post-secondary institutions under the Investing in Canada Plan (ICIP).

Stakeholder Objectives
It is expected that Universities Canada will wish to discuss the role of university infrastructure in attracting and retaining top talent and in bringing communities together. The association may also speak to a 2017 report on strengthening the foundations of Canadian research, as well as funding opportunities for Canadian universities.

Context/Overview
Universities Canada (formerly the Association of Universities and Colleges of Canada) is a non-governmental, membership-based organization, founded in 1911 and headquartered in Ottawa that provides university presidents with a unified voice for higher education, research and innovation. It is funded primarily through fees paid by its membership of 96 public and private not-for-profit Canadian universities. The association's main activities include:

- Advocating for Canadian universities at the federal level;
- Providing a forum for university leaders to share ideas and address challenges in higher education; and
- Fostering collaboration among universities and governments, the private sector, communities and international partners to help build a better world.

In September 2017, Infrastructure Canada's (INFC) previous Deputy Minister met with Ms. Johnston to discuss a report entitled *Investing in Canada's Future: Strengthening the Foundations of Canadian Research*. This report provided a series of recommendations for transformative re-investment in scientific discovery and innovation. Furthermore, this report called for government support through new federal spending in areas such as infrastructure-related operating costs for small equipment and Big Science facilities, among other areas. An executive summary of the report can be found in **Annex B**.

INFC Investment Opportunities for Universities

Under the terms and conditions of the next phase of the ICIP, investments in universities will be quite limited because they will only be eligible to receive funding when working in partnership with a municipality. In such circumstances, universities can be eligible to receive funding as not-for-profit proponents under the ICIP's Integrated Bilateral Agreements (e.g., a university working with a recognized public transit system to renovate an existing campus transit station or to establish a new transit station on campus could be eligible under the Public Transit stream). Any project submitted by the province or territory, including projects where a university has partnered with a municipality, must demonstrate alignment with the stream-specific immediate outcomes as defined in the Agreement in order to be eligible to receive funding under any of the ICIP streams.

It is important to note that the eligibility of post-secondary institutions to receive funding under Infrastructure Canada programs has varied over time. Since 2005, INFC programs have provided universities across Canada with approximately $1.5 billion. Projects have included repairs to reserved bus lanes at the Université de Sherbrooke, cycling connections at York University and the University of Ottawa, the expansion of the University of Waterloo's G8 Centre, and a core science facility at Memorial University of Newfoundland (a $99.8 million federal contribution was approved for this project in 2016).

The most interesting INFC program from a post-secondary institution perspective was the New Building Canada Fund, introduced in 2014. Under the $10 billion Provincial and Territorial Infrastructure Component of that program (National and Regional Projects), an innovation category was established to support investments in infrastructure at post-secondary education institutions focused on research and development, and related teaching facilities. The goal of the innovation category was to enhance university and college capacity to conduct research and development, and to transfer it to market, to develop a high-skilled workforce, and to increase opportunities for collaboration between the private sector and post-secondary institutions to contribute to long-term economic growth. Eligible projects included:

1. Post-secondary research and development laboratories and centres, and related teaching facilities;
2. Office space for the purpose of conducting research and development; and,
3. Research libraries associated with the research laboratories and centres.

Only two projects have been funded under this category, which may be explained by the fact that most provinces and territories have preferred to prioritize projects in other areas. Though most of the Provincial and Territorial Infrastructure Component – National and Regional Projects funding has been subscribed, approximately $1.3 billion remains to be allocated. To be considered for funding, projects must be prioritized by the province or territory in which the project is located by March 31, 2018.

Infrastructure-related Opportunities for Universities from Other Government Departments

Most federal funding for university infrastructure flows from programs administered by Innovation, Science and Economic Development Canada. The most recent program is the Post-Secondary Institutions Strategic Investment Fund. It is a federal/provincial initiative that provides funding of up to $2 billion for infrastructure projects at post-secondary institutions to modernize research and commercialization facilities, as well as industry-relevant training facilities at colleges and polytechnic institutions. According to that department's website, the Strategic Investment Fund has been almost completely allocated, as approximately $1.97 billion in funding has been provided across the country.

Points to Register

- I appreciate the opportunity to meet with you today.

- The Government of Canada understands how vital infrastructure is to the entire country.

- My department's mandate is focussed on delivering on a long-term infrastructure plan that builds economically vibrant, sustainable and inclusive communities.

- While this mandate does not extend to directly supporting the infrastructure needs of our universities, it may be possible to obtain some funding, under the next phase of the Investing in Canada Plan, when benefits from projects can be shared with local communities. For example, if a university were to work in tandem with a municipality, province or territory to provide gymnastic facilities for both students and members of the community, this project could be eligible under the Community, Culture and Recreation stream.[1]

- Post-secondary institutions have benefitted from almost $4 billion in federal funding under initiatives such as the previous Knowledge Infrastructure Program and the current Post-Secondary Institutions Strategic Investment Fund.

- Both of these initiatives fall under the purview of my colleague, Mr. John Knubley, the Deputy Minister of Innovation, Science, and Economic Development Canada. I encourage you to reach out to him, as he may be able to provide you with updates on the status of the Post-Secondary Institutions Strategic Investment Fund, as well as the future direction of the program.

Innovation category under the New Building Canada Fund

- It is true that in the past Infrastructure Canada has provided funding for post-secondary institutions. This was possible under the innovation category under the New Building Canada Fund (Provincial-Territorial Infrastructure Component – National and Regional Projects) which provided support for investments in infrastructure at post-secondary education institutions supporting research and development and related teaching facilities.

- It is important to note that funding under this program has been largely subscribed. However, there remains some funding which could be allocated to eligible projects under this innovation category. Any project proposals must be identified as priorities by March 31, 2018 by the government of the province or territory in which the university is found.

2017 Research Report (if asked)

- Research conducted in post-secondary education institutions is critical to the development and adoption of new products, engineering and construction methods, and solutions to complex infrastructure needs, such as the technologies required for adapting and mitigating the effects of climate change on existing infrastructure projects. We will be looking to post-secondary institutions across the country to drive infrastructure-related research, innovations and best practices.

- I understand you met with my predecessor in the fall to discuss the findings of the Canada's Fundamental Scientific Review Panel's report. I would be interested to hear about any updates on your association's progress as you develop your research projects.

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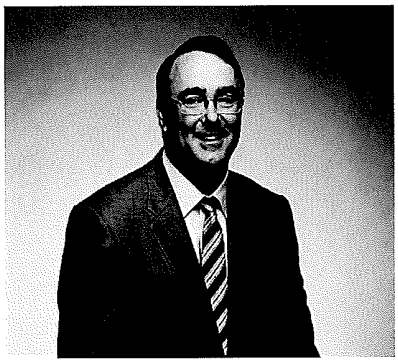
[1] Community, culture and recreation projects must be community-oriented, non-commercial (i.e., space rental fees that cover only the operating cost for the rental would be acceptable) in nature and open for use to the public and not limited to a private membership.

Annexes:

Annex A – Biographies of Paul Davidson and Pari Johnston
Annex B – Executive Summary of 2017 Report: *Investing in Canada's Future – Strengthening the Foundations of Canadian Research*

Annex A – Biographies

Paul Davidson
President
Universities Canada



Paul Davidson has played leadership roles in government, the private sector and the voluntary sector for more than 25 years. He joined Universities Canada in May 2009 as president and CEO.

As president of Universities Canada, Mr. Davidson is building strong partnerships with business, postsecondary education and community leaders to advance a vision of higher education that promotes opportunity and excellence for Canadians. The university sector has also seen substantial and exceptional investments in university research funding, increased resources for campus internationalization and a heightened awareness of the need to improve Aboriginal Canadians' access to postsecondary education. Mr. Davidson has been named both a top lobbyist in Ottawa and a top foreign policy influencer.

Prior to joining Universities Canada, Mr. Davidson was executive director of World University Service of Canada (WUSC). He also held senior positions in the Canadian book publishing sector, including five years as executive director of the Association of Canadian Publishers. In the early 1990s, Mr. Davidson led the Toronto office of a prominent government relations firm after having served as a political advisor to Ontario's Leader of the Opposition, Treasurer and Deputy Premier.

He holds an MA from Queen's University, where he studied southern African history and a BA from Trent University, where he was part of the first graduating class of the Trent International Program.

Pari Johnston
Vice-President, Policy and Public Affairs
Universities Canada

Pari Johnston is vice-president, policy and public affairs at Universities Canada, leading all federal policy and advocacy initiatives of the association. She is responsible for strategic oversight of Universities Canada's government relations, communications, policy and research and international relations to promote the role of higher education, research and innovation in Canada's future, at home and abroad.

Ms. Johnston joined Universities Canada in 1997, and has played increasingly senior roles, including director of international relations, before building a new member relations program and leading the public affairs team.

She is a member of the board of directors of *The Conversation Canada*, a global platform for academic journalism recently launched in Canada.

INVESTING IN CANADA'S FUTURE

Strengthening the Foundations of Canadian Research

EXECUTIVE SUMMARY

CANADA'S FUNDAMENTAL SCIENCE REVIEW

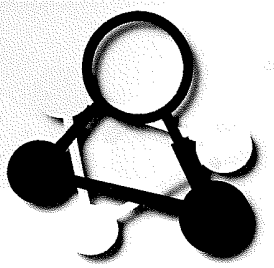
2017

Investing in Canada's Future – Executive Summary

ISBN 978-0-9959243-4-5 (PDF)
ISBN 978-0-9959243-6-9 (Print)

Disponible en français

ABSTRACT



Canadian accomplishments in science and scholarly inquiry have long been a source of national pride. However, by various measures, Canada's research competitiveness has eroded in recent years when compared with international peers. The change coincided with a period of flat-lining of federal spending through the four core funding agencies that support researchers in universities, colleges, institutes, and research hospitals. In those years funds were also directed preferentially to priority-driven and partnership-oriented research, reducing available support for independent, investigator-led research by frontline scientists and scholars.

The proportion of federally derived funding for research has also declined. Canada ranks well globally in higher education expenditures on research and development as a percentage of GDP, but is an outlier in that funding from federal government sources accounts for less than 25 per cent of that total, while institutions now underwrite 50 per cent of these costs with adverse effects on both research and education.

Despite high levels of talent, expertise, and dedication on the part of those serving each agency, there is evidence to suggest that the overall stewardship of the federal research ecosystem needs to be strengthened. Coordination and collaboration among the four agencies is suboptimal, with variations in governance, administrative practices, and funding priorities within and across agencies that are not explicable either by disciplinary differences or by the needs of the relevant research communities. Investments in infrastructure and related operating costs are not consistently aligned, and funding for areas such as international partnerships or multidisciplinary research is uneven. Early career researchers are struggling in some disciplines, and a career-spanning strategy for operating and personnel supports is lacking. For example, flagship personnel programs such as the Canada Research Chairs have had the same value since 2000. Levels of funding and numbers of awards for students and postdoctoral fellows have not kept pace, variously, with inflation, peer nations, or the size of the applicant pools.

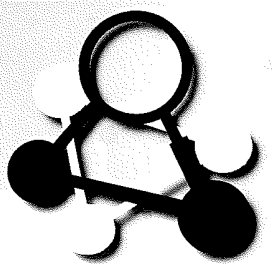
This report accordingly outlines a comprehensive agenda to strengthen the foundations of Canadian extramural research. It recommends legislation to create an independent National Advisory Council on Research and Innovation (NACRI). Working closely with Canada's new Chief Science Advisor (CSA), the new council would raise the bar in terms of ongoing evaluations of all programming. The report also recommends wide-ranging improvements to oversight and governance of the four agencies, including the appointment of a coordinating board chaired by the CSA. Other changes would promote lifecycle oversight of national-scale research facilities, and improved methods for initiating, reviewing, and renewing or terminating contribution agreements with external non-profit entities operating in the research realm.

Concurrent with these improvements designed to augment the effectiveness, accountability, and efficiency of various elements of the system, significant reinvestment is required. This reinvestment should be undertaken on a multi-year basis, coupling predictability with better planning. Targeted increases are recommended based on benchmarking, contingent in several cases on presentation and approval of multi-agency plans for improvements to programs. New spending would be balanced across:

- investigator-led research operating grants (the highest priority);
- enhanced personnel supports for researchers and trainees at different career stages;
- targeted spending on infrastructure-related operating costs for small equipment and Big Science facilities; and
- enhancement of the environment for science and scholarship by improved coverage of the institutional costs of research.

The cumulative base increase would move annual spending in steady-state across the four agencies and closely related entities from approximately $3.5 billion to $4.8 billion. This phased-in increase requires dedicating an additional 0.4 per cent of the Government of Canada's annual budget to an area of shared jurisdiction where federal leadership is essential and welcomed. Given global competition, the current conditions in the ecosystem, the role of research in underpinning innovation and educating innovators, and the need for research to inform evidence-based policy-making, it is also among the highest-yield investments in Canada's future that any government could make.

EXECUTIVE SUMMARY



1. Mandate and Consultations

The Advisory Panel on Federal Support for Fundamental Science was appointed in June 2016. Our mandate entailed a review of the federal system of supports for extramural research, understood to be research conducted by scientists and scholars employed outside of federal, provincial, or territorial government departments and agencies.

Our mandate was further clarified as follows. We were expected to cover the full range of disciplines involving peer-reviewed science or inquiry, with either a basic or applied orientation. As well, our focus was to be on programs supporting knowledge generation, as contrasted with programs oriented primarily to fostering partnerships with industry or civil society, or promoting knowledge translation, innovation, and commercialization.[i] We focused our work primarily on the four pillar agencies that support the Canadian extramural research ecosystem: the three granting councils—the Natural Sciences and Engineering Research Council (NSERC), the Canadian Institutes of Health Research (CIHR), and the Social Sciences and Humanities Research Council (SSHRC)—as well as the federal infrastructure agency, the Canada Foundation for Innovation (CFI).

Consistent with our mandate, we examined funding arrangements in peer nations. Our assessments have been shaped by their international practices, and by the organizing principles we observed in the strongest agencies and programs here and abroad. These principles may be encapsulated by the following brief descriptors: World-leading and Globally-collaborative; Meritocratic; Independent yet Accountable; Coordinated; Balanced; Responsive; Talent-focused; Diverse and Equitable; Efficient; and Outward-facing.

The Panel's call yielded 1,275 written submissions from individuals, associations, and organizations. We also convened roundtables in five Canadian cities, engaging some 230 researchers at different career stages in conversations on diverse topics. We identified many strengths and found much to commend.

Our mandate, however, was to identify gaps and address specific questions posed by the Minister of Science. The concluding chapter of the report addresses each of those questions. This précis in contrast tracks the logic of the report itself, opening with an overview of the system's funding and performance and then summarizing our recommendations in three interlocking categories.

2. Funding

Canadian gross domestic expenditure on R&D from all sources relative to GDP (GERD intensity) has been declining slowly over the last 15 years, as contrasted with our G7 peers and key east Asian nations. Worldwide, including non-OECD nations, we are no longer in the top 30 nations in terms of total research intensity. HERD is a subset of GERD related to extramural research conducted by institutions of higher education and affiliates. In 2014 Canada's HERD intensity was seventh in the OECD, but highest in the G7.

i The Advisory Council on Economic Growth has recently recommended a wide-ranging review of federal supports for innovation. We have endorsed that recommendation (**R1.1**), and indicated areas of synergy with our other recommendations.

This higher standing compared with overall R&D spending is often linked to the growth in federal research spending that started in 2001, and seems at odds with the extensive concerns about funding that we heard from scientists and scholars. However, in 2015 almost 50 per cent of HERD in Canada was funded by universities and colleges themselves, while the federal government contributed only 23 per cent. Internationally this is a highly anomalous situation, and it is having adverse effects on both research and higher education across Canada.

As well, growth in federal spending was matched by growth in the number of people engaged as researchers at Canadian universities and colleges. Thus, in constant dollars, granting council funding per researcher has been in steady decline since 2008-09. We examined a number of international peer jurisdictions and found no evidence that there was either unusually fast growth in Canada or that there is now a uniquely Canadian glut of extramural researchers. Indeed, for doctoral-level graduation rates, Canada ranked 22nd among 35 comparator OECD countries in 2013; contrary to popular belief, Canadian enterprises in the for-profit and not-for-profit sectors are hiring PhDs at a rate commensurate with rising graduation rates.

The years from 2006-07 to 2013-14 also saw a shift in funding away from independent research, be it basic or applied, that allows individuals or teams to define their topics and/or the structure of the research collaboration. We estimated that scholars, scientists, and trainees wishing to pursue fully independent research work saw a decline of available real resources per researcher of about 35 per cent in that period.

3. Performance Measures

There are many possible measures of the quality and impact of science and scholarly inquiry. Two commonly used are summarized here: bibliometric analyses of publication counts in indexed journals and profiles of major prizes and awards. Canada's publication output is growing, but, according to a December 2016 update from the Council of Canadian Academies: "Production of publications in most fields of research in Canada grew more slowly than the world average in 2003–2014. This is a change from the 2012 report, which noted that half of the fields grew more quickly than the world average in 1999–2010." As a result, Canada's global rank in total research output dropped, from seventh in 2005–2010 to ninth in 2009–2014, as Italy and India moved ahead. Examining numbers of recent publications in *Nature* and *Science*, the two flagship journals of basic research, Canada ranked 8th among nations, with only 1 Canadian institution in the top 20 worldwide, and 2 more in the top 100.

Citations, which occur when publications are referenced in articles by other scientists and scholars, are a proxy for impact of Canadian-authored work. Canadian papers were cited at a rate 43 per cent higher than the global average in 2009–2014, standing commendably in the top six nations globally. However, our growth rate ranked 15th, suggesting again that Canada is stalling relative to peers. Examining the numbers of publications in the top 1 or 10 per cent worldwide for frequency of citation, on a per capita basis Canada lags other small nations such as the Netherlands, Sweden, and Switzerland.

Canada's performance in winning international prizes is trailing traditional powerhouses such as the U.S. and U.K. It is also well behind Australia, which now outperforms Canada on several other measures. In recent decades, twice as many Canadians have won research-related Nobel prizes while working in the U.S. as have been awarded to Canadian-born or foreign-born scientists working in Canada.

4. Findings and Recommendations in Brief

We emphasize that the summary of findings and recommendations below is highly abbreviated. It would be irresponsible for any secondary summary or other interpretation of our report, let alone policy action, to depend solely on this précis rather than on careful reference to the full text.

4.1 Broad Oversight, Rigorous Evaluation

Based on consultations and its own research, the Panel concluded that Canada's federal research ecosystem, despite many strengths, is weakly coordinated and inconsistently evaluated, and has not had consistent oversight. Further, the links between extramural and intramural research should be strengthened, as should federal-provincial-territorial (FPT) collaboration. The current external advisory body, the Science, Technology and Innovation Council (STIC), has no independent reporting authority and a constrained disciplinary mandate. The imminent appointment of a new Chief Science Advisor (CSA) for Canada is a major step forward, but more needs to be done.

We recommend **(R4.1)**[ii] that the Government of Canada, by an Act of Parliament, should create a new National Advisory Council on Research and Innovation (NACRI) to provide broad oversight of the federal research and innovation ecosystems. STIC should be wound down as NACRI is established **(R4.2)**.

NACRI should have 12 to 15 members, appointed through Orders in Council, comprising distinguished scientists and scholars from a range of disciplines as well as seasoned innovators with strong leadership and public service records from the business realm and civil society. Domestic members should be drawn from across Canada and reflect the nation's diversity and regions **(R4.3)**. An external member should hold the Chair of NACRI with the CSA serving as Vice Chair. NACRI should be supported by a dedicated secretariat working within the larger expert team supporting the CSA **(R4.4)**.

As a council of senior volunteers with a broad mandate of national importance, NACRI should have a publicly acknowledged working connection to the Prime Minister/PMO, parallel to that established for the CSA. NACRI should report to and interact most directly with the Minister of Science and the Minister responsible for Innovation and Economic Development, and liaise closely with the Minister of Health given Health Canada's linkages to CIHR. It should also have open channels of communication with ministers of key departments involved in intramural and extramural research **(R4.6)**. Connections to officials in Finance will be particularly important to facilitate input by the CSA/NACRI on intramural and extramural research budgets.

Among NACRI's responsibilities would be:

- advice to the Prime Minister and Cabinet on federal spending as well as broad goals and priorities for research and innovation;
- improving the coordination and strategic alignment of different elements of federal support for research and innovation;
- evaluation of the overall performance of the extramural research enterprise;
- public reporting and outreach on matters determined by the Council;
- confidential or public advice on other matters as requested by the Government of Canada;
- a foresight function for research and innovation;
- in concert with the CSA, ongoing advice on (i) the effectiveness of extramural research agencies and the intramural research groups, and (ii) the facilitation of collaboration among them and with the extramural research realm;
- advice on unusual requests for research support that fall outside the usual remit of the granting councils and CFI; and
- liaison with parallel bodies in provinces and territories and internationally as appropriate.

ii R4.1, etc. correspond to Recommendation 4.1, etc. in our report.

A relatively recent development has been the growth in numbers of "contribution agreements" whereby the Government of Canada channels research funds through or directly into external entities (e.g., Genome Canada or Mitacs). We did not review specific entities in detail, but believe more rigorous reviews should be undertaken before agreements are renewed. The Panel therefore recommends **(R5.8)** that NACRI be mandated not only to review proposals to create new third-party delivery organizations, but also to guide the periodic review processes for all existing third-party organizations, and advise as to the continuation or modification of their contribution agreements. As well, the Panel applauds the success of these entities in leveraging research funds, but recommends careful oversight of the implications of placing matching requirements on the funding of independent research **(R5.9)**.

A more interconnected intramural research realm is important both for sound policy formulation and for collaboration with extramural researchers. The Panel accordingly recommends **(R4.5)** that the Privy Council Office, working with departmental officials and the newly appointed CSA, examine mechanisms to achieve improved whole-of-government coordination and collaboration for intramural research and evidence-based policy-making.

As well, many informants recommended that the federal government should manage its investments in Big Science in a more coordinated manner. The Panel agrees. We recommend **(R4.7)** that the CSA convene a Special Standing Committee on Major Research Facilities (MRFs), chaired by an eminent scientist. This body would provide advice on the life cycle of federally supported MRFs, extending from a peer-reviewed decision to initiate an MRF, through budgeting, planning, and construction, then periodic reviews of effectiveness, and finally a decommissioning plan. Our report offers advice on the structure of the committee, its intersection with NACRI, and a tentative list of major science initiatives (MSIs) that might be considered to fall into the MRF category. This expert group would also improve decision-making about Canada's participation in global science initiatives, such as major astronomical telescopes.

Strong FPT collaboration is essential if Canada is to compete internationally. The Panel learned that interactions among the relevant officials and ministers are sporadic. Among the issues that seem likely to benefit from enhanced dialogue are matching requirements, human resource planning for research and innovation, and the institutional costs of research.[iii] We accordingly recommend **(R4.8)** that the CSA, with advice from NACRI, take the lead in promoting a shared agenda on matters of national concern. Ongoing interactions and annual in-person meetings should be established to strengthen collaborative research relationships among FPT departments with major intramural or extramural research commitments.

This is a special year for Canada. In that spirit, we recommend **(R4.9)** that the Government of Canada propose and initiate planning for a First Ministers' Conference on Research Excellence in 2017, both celebrating and cementing a shared commitment to global leadership in science and scholarly inquiry as part of Canada's sesquicentennial celebrations.

4.2 The Four Agencies: Strengthened Core, Better Coordination

The granting councils and CFI have made a vital contribution to Canadian science and scholarly inquiry. However, while assorted self-commissioned evaluations have occurred, the Panel could not find any broad external review of the federal agencies and research ecosystem since the 1970s. It is perhaps unsurprising that the Panel heard and read concerns about coordination, governance, strategy, budgeting, and programming. For example, while there is some apparent congruence in the conceptual basis of the Discovery (NSERC), Insight (SSHRC), and Foundation (CIHR) programs, success rates, funding levels, and peer review practices have all diverged across those programs to a degree that is hard to explain based on disciplinary differences alone.

iii This latter group of costs is sometimes (inaccurately) termed "indirect costs"; we believe, however, that the term, "facilities and administration costs" (F&A costs), better captures the direct financial impact of these activities.

There have been encouraging but piecemeal efforts to improve coordination, promote collaboration, and share best practices. However, the inconsistent governance of the agencies means that these have been highly dependent on the preferences of agency presidents. To improve this situation, the Ministers of Science and Health should **(R4.10)** mandate the formation of a formal coordinating board for the four agencies, chaired by the CSA, with membership including agency heads, department officials, and external experts. Reporting to the Ministers of Science and Health, the new Four Agency Coordinating Board would expeditiously determine and implement avenues for harmonization, collaboration, and coordination of programs, peer review procedures, and administration. In the event that the CSA and NACRI determine that progress on a shared agenda is unduly slow, the Board's composition would be revised and its authority extended such that its decisions would be binding for coordination of the agencies.

The Panel identified several areas that require the early attention of the new Board and the four agencies. Elimination of mandatory retirement has led to an aging of the professoriate, and is likely to constrain opportunities for early career researchers (ECRs) over the next decade. We also observed that the prospects for ECRs vary across the three granting councils, not only creating a demographic deficit, but also impeding the progress of women and other underrepresented groups that are more prevalent in the next generation, e.g., Indigenous people, those with disabilities, and members of racialized groups. Peer review practices vary, the program landscape is cluttered, and inefficiencies were identified by researchers in the organization and administration of grant competitions.

We accordingly recommend **(R5.2)** that the Government of Canada direct the new Coordinating Board to develop and harmonize funding strategies across the agencies, using a lifecycle approach that balances the needs and prospects of researchers at different stages of their careers. The four agencies should examine best practices in supporting ECRs, augment their support of ECRs at consistent levels across disciplines, and track and report publicly on the outcomes **(R5.6)**.The Board should **(R5.3)** also create a mechanism for harmonization as well as continuous oversight and improvement of peer review practices across the three councils and CFI, starting with a common set of guiding principles or values for peer review.

A further priority should be **(R5.4)** the development of consistent and coordinated policies to achieve better equity and diversity outcomes in the allocation of research funding while sustaining excellence as the key decision-making criterion. On this latter point, given experience with unaddressed gender bias in allocation of both Canada Research Chairs (CRCs) and Canada Excellence Research Chairs (CERCs), the federal ministers responsible should consider hard equity targets and quotas where inexplicable discrepancies persist **(R5.5)**.

Approximately 1.5 million Canadians have Indigenous roots, but the participation of this community in science and scholarly inquiry continues to be limited. As a small nation, Canada cannot compete globally in any realm without strong participation by all communities. The three granting councils should **(R5.7)** accordingly collaborate in developing a comprehensive strategic plan to promote and provide long-term support for Indigenous research, with the goal of enhancing research and training by and with Indigenous researchers and communities. The plan should be guided by the Truth and Reconciliation Commission's recommendations on research as a key resource.

The Panel also examined the legislative history, governance, and mandates of each of the four agencies. CFI functions as an independent non-profit with the president accountable to a corporate board, and the entire operation subject to a contribution agreement. If CFI moves from intermittent contributions to a regularized A-base budget, as recommended below, its governance will need to be revised. NSERC, SSHRC, and CIHR are all departmental corporations with advisory councils. Whereas SSHRC and NSERC have skeletal legislated mandates, the CIHR Act embodies an expansive and detailed mandate. Accountabilities for the tri-council presidents are less than clear.

The Government of Canada should **(R4.11)** undertake a comprehensive review to modernize and, where possible, harmonize the legislation for the four agencies that support extramural research. The review would clarify accountabilities and selection processes for agency councils and presidents, promote good governance and exemplary peer review practices, and give priority to inter-agency collaboration and coordination. On this last point, the goal must be to strengthen linkages between agencies, and not to thicken the walls of silos. Initiation of the Four Agency Coordinating Board should precede any legislative review.

Last, the Panel considered the thorny issue of allocation of funds across the three granting councils. We found no logical consistency to the current allocations but it is clear that all three councils are currently underfunded. CIHR's expansive mandate is not appropriately supported; its budget is sharply lower on a per capita basis than the counterpart U.S. National Institutes of Health, even taking into account the standard differences in funding models between U.S. and Canadian agencies. NSERC has a larger weighting of innovation-facing or priority-driven programming. While it does have much higher approval rates than the other councils for its flagship Discovery program, funding constraints above all have held the average size of those grants at a seriously suboptimal level for 15 years. Despite claims that funds are allocated on a 40-40-20 basis across the councils, SSHRC's share has been under 15 per cent for three decades. It has the largest constituency of faculty-level researchers, but over half of its funding goes to graduate awards. Its share of tri-council funding is likely to fall owing to its minimal participation in the large-scale Canada First Research Excellence Fund (CFREF) launched in 2015.

The Panel sees a period of reinvestment as the right moment for NACRI to review the allocation of new funds across the granting councils and recommend changes as appropriate **(R5.1)**. Particular attention should be paid to evidence that the structures of tri-council programs have adversely affected the funding opportunities for scholars in the social sciences and humanities.

4.3 Strategic Clarity and a Multi-year Plan for Renewal

The Panel's overall conclusion is that independent science and scholarly inquiry have been underfunded for much of the last decade, as the federal government has concentrated resources on innovation-facing and priority-driven programs. In reaching that conclusion we considered the small and declining share of HERD attributable to the federal government; Canada's anomalous dependence on institutional subsidies to carry the extramural research enterprise; and our declining research performance on multiple measures, as compared not just with traditional powerhouses, but with smaller nations such as Australia and the Netherlands. We weighed temporal trends in per researcher funding, the demographics of the research community, Canada's density of full-time researchers and senior research trainees, and, not least, the distressingly low success rates (CIHR) and persistently low funding levels (NSERC, SSHRC) in the granting competitions that support independent research. We have no doubt that a major boost to funding for the ecosystem is urgently needed, with shortfalls affecting research operating grants, personnel awards, reimbursement of the institutional costs of research, and operations and maintenance of specific types of facilities.

4.3.1 Direct Project Funding: Research Operating Grants

The Panel's single most important recommendation **(R6.1)** is that the federal government should rapidly increase its investment in independent investigator-led research to redress the imbalance caused by differential investments favouring priority-driven targeted research over the past decade. The recommended investment is $485 million, phased in over four years, directed to funding investigator-led research. This is an increase of about 30 per cent on the $1.66 billion envelope currently committed to direct project funding for both priority-driven and investigator-led research. This would move the balance of funding within this envelope a meaningful distance back towards the 70:30 ratio in favour of investigator-led research that prevailed in the

early 2000s. The lion's share of this amount, $405 million a year, would be devoted to the granting councils' core "open" competition programs. While the remainder would support investigator-led projects, it would be channelled to promote the emergence of a more vibrant research ecosystem by encouraging international collaborations, multidisciplinary work, high-risk ventures, and projects requiring rapid response. These are examined, in turn, below.

The Panel also examined the configuration of two priority-driven programs that, while constrained in key respects, provide operating funds to coalitions of frontline researchers. Each aims to create critical mass in a different way. The "classic" element ($62 million per year) of the Networks of Centres of Excellence (NCE) suite of programs draws together researchers from multiple institutions. It imposes requirements for knowledge translation and commercialization that preclude or limit the creation of national networks of independent researchers, especially those working in basic research and, to some extent, in the social sciences and humanities more generally. CFREF is a newer program that aims to promote institutional specialization; some limited inter-institutional networks emerged in the second round of funding, but its strategic intent is one of local critical mass rather than national capacity. The concentration of funds is significant, approximating $200 million per year flowing into a limited number of centres for research in specific areas aligned with the previous government's science and technology priorities.

The Panel sees these two strategies as complementary over time, but recommends refinements in one case, and a mid-course evaluation for the other. In particular, the Government of Canada should **(R6.2)** direct the new Four Agency Coordinating Board to amend the terms of the NCE program so as to include the fostering of collaborative multi-centre strength in basic research in all disciplines. This would mean, *inter alia,* removing requirements for knowledge "exchange and exploitation" and expectations of funding self-sufficiency for some competitions. For CFREF, the Panel recommends **(R6.3)** that an interim evaluation be undertaken before the third wave of awards is made. The CSA and NACRI should be engaged in the design of the review.

There are also four areas where operating grants are being made on an ad hoc basis. The Panel believes that these areas require a more systemic and coordinated approach, supported by earmarked funding.

First, international collaborations have become the norm in research. A stronger mechanism is needed for funding smaller- and mid-scale collaborative projects so that Canadian agencies and researchers can be more effective partners and participants in global science and inquiry **(R6.4)**.

Second, multidisciplinary research continues to grow in prevalence and importance. The councils have taken steps to support some joint initiatives, but the Panel believes that more must be done—not only to welcome and fairly review multidisciplinary proposals, but also to ensure that individuals working in convergent fields (e.g., health law, medical anthropology, design) are not orphaned **(R6.5)**.

Third, the councils should **(R6.6)** develop a coordinated strategy for adjudicating and supporting high-risk, high-reward (HR^2) research. Other jurisdictions have successful HR^2 programming from which Canada should learn.

Fourth and finally, crises and urgent issues may occasionally require rapid responses by the research community. These needs have been accommodated in an ad hoc fashion in recent years, but a more formal process involving the CSA would be appropriate today **(R6.7)**.

The required funds for these four areas can arguably be aggregated in one or two contingency pools. Given extant funding pressures and challenges in the governance and oversight of the councils, we recommend that a portion of the base increase of $485 million be earmarked for these purposes, starting at $20 million in base funding in the first year, and rising progressively to a steady-state of $80 million per year over four years, with early priority given to strengthening international collaboration.

4.3.2 Infrastructure

CFI confers distinct strategic advantages on Canadian research by depoliticizing research infrastructure decision-making. It functions as a core agency, but is governed by contribution agreements with a separate non-profit corporate structure because it originally received and held unspent year-end funds. The federal government terminated that funding model, and CFI has since been funded by large and intermittent one-time-only allocations that it deploys over some years. The resulting saw-tooth pattern of funding impedes planning and coordination. Continued A-base funding would be budget neutral.[iv] The Panel recommends **(R6.8)** that the Government of Canada shift CFI to a stable annual budget scaled at minimum to its recent annual capital commitment (currently around $300 million per year). This shift would likely require governance changes, covered as part of the four agency review recommended above **(R4.11)**.

The need for further growth in CFI's capital fund should be monitored. However, the Panel observes that the relevant sectors have benefitted both from the Knowledge Infrastructure Fund (2009–2011) and the ongoing Post-Secondary Institutions Strategic Investment Fund (2016–2018).

CFI's institutional operating and maintenance (O&M) outlays are provided through its Infrastructure Operating Fund and scaled to recent capital awards. These one-time allocations serve more as a pool of funds in support of start-up costs than as a continuing offset of the institutional costs of research. We address those liabilities below.

As contrasted with the one-time O&M support to institutions, CFI since 2010 has provided ongoing funding to a number of MSIs. The MSI funding mirrors CFI's capital ratio (40:60) for matching of eligible O&M costs. A number of national-scale MSIs are struggling to meet this matching requirement. We have recommended (**R4.7** above) additional oversight for these MRFs with a view to averting future problems, but these national facilities are unfortunately at immediate risk. We therefore recommend **(R6.10)** that the federal government mandate and fund CFI to increase its share of the matching ratio for national-scale MRFs from 40 to 60 per cent. The annual cost of doing so is estimated at $35 million.

One other element of infrastructure that drew our attention relates to the digital research realm. There are many players active here, and an effort is underway to develop a coordinated plan through the Leadership Council on Digital Infrastructure. The two cornerstone organizations receiving federal funding are Compute Canada and CANARIE. We recommend **(R6.9)** that the Government of Canada merge these organizations and provide the new entity with consolidated long-term funding and a mandate to lead in refining and implementing a national digital research infrastructure (DRI) strategy.

4.3.3 Personnel

Support for Doctoral Students and Postdoctoral Fellows.

Doctoral students and postdoctoral trainees or fellows (hereafter PDFs) are integrally involved in the majority of postsecondary research in Canada. The recommended increase in support for independent investigator-led funding will enhance stipendiary support and enrich the training environment for graduate students and PDFs across the ecosystem. However, while these and other sources of support (institutional, provincial, industrial, and charitable) underwrite most of the relevant salaries and awards, we estimate that over 6,000 doctoral students and 1,400 PDFs across Canada hold direct federal awards at any time. These awards set a bar for funding and quality.

The number of core graduate awards (Canada Graduate Scholarships) has not increased since 2007 despite major increases in graduate enrolments. In addition, the value of graduate awards has not changed since

iv CFI does not currently have continuing A-base funding, but the Department of Finance makes provision for its ongoing expenditures. As we are recommending that CFI spending on capital continue at recent activity levels, this recommendation is budget neutral.

2003, and PDF awards levels are similarly lagging, not least in comparison to U.S. rates. There is also a puzzling mix of council-specific and tri-council awards, with variation in value, duration, and international portability. The complexity was augmented in 2008 and 2010 with the addition of smaller numbers of more remunerative awards to doctoral students (Vanier) and PDFs (Banting), respectively. These are flexible as regards recruitment of international students or international placements for domestic students, but their numbers are small. A clear strategy is needed to increase the recruitment of top-flight international graduate students and PDFs, and to ensure that more domestic students and trainees have opportunities to learn from international exposure to leading scientists and scholars.

We recommend **(R7.1)** that the Four Agency Coordinating Board be directed to oversee a tri-council process to reinvigorate and harmonize scholarship and PDF fellowship programs, and rationalize and optimize the use of current awards to attract international talent. While strict uniformity may be neither feasible nor desirable, more consistent and, in many cases, more generous levels of support (value and duration) are needed. We undertook benchmarking to estimate the financial implications of harmonizing, upgrading, and bringing strategic focus to the system of graduate student and PDF supports. As a result of these analyses, we recommend that a total base increase of $140 million per year be phased in over four years, in equal increments of $35 million per year.

Research Chairs for Excellent Scholars and Scientists

The major sources of federal funding for researcher salary support are the CRC and CERC programs. Launched in 2000, the CRC program aimed "to attract and retain some of the world's most accomplished and promising minds" by creating 2,000 research professorships across Canada. Chairs are allocated to institutions based on shares of competitive grant funding received from the three councils. Tier 1 Chairs, valued at $200,000 per year, are intended for researchers recognized as world leaders in their fields and renewable on seven-year terms. Tier 2 Chairs, valued at $100,000 per year, target exceptional emerging researchers, and can be renewed once with a five-year term. The value of these awards has not changed for 17 years.

The CERC program was established in 2008 to "support Canadian universities in their efforts to build on Canada's growing reputation as a global leader in research and innovation." It awards world-renowned researchers and their teams up to $10 million over seven years to establish ambitious research programs at Canadian universities. The 27 CERCs awarded to date are non-renewable and require 1:1 matching funds from the host institution. All CERCs have been recruited from abroad. All, until the most recent round, have been constrained to the government's STEM-related priorities, restricting their availability for scholars and scientists from the SSHRC-supported disciplines.

A 2016 evaluation of the CRC program observed that a rising number of chairholders originated from within the host institution, with a further 14.4 per cent recruited from other Canadian institutions. For the 2010–2014 period, international recruits accounted for only 13 per cent and 15 per cent of new Tier 1 and 2 nominees, respectively, whereas in 2005–2009, the averages were 32 per cent and 31 per cent, respectively.

Due to turnover and delays in filling Chair positions, approximately 10 to 15 per cent of Chairs are unoccupied at any one time. As a result, the CRC program's budget was cut by $35 million in 2012. This predictably drove numbers down further, with an all-time low of only 1,612 Chair positions (80.6 per cent of the original plan) filled as of December 2016.

This flagship program is vitally important to Canada and requires major renewal. We recommend **(R7.2)** a three-stage process. First, funding of the overall program should be restored to 2012 levels (a $35 million base commitment), but only after the granting councils and Chair Secretariat produce an approved plan for (i) allocating the new Chairs asymmetrically in favour of Tier 2 awards to help ECRs, and (ii) improving logistics in managing numbers and reducing delays in awarding Chairs so as to improve the uptake of available funds.

Second, the granting councils should be directed to cap the number of renewals of Tier 1 Chairs, and develop a plan in concert with universities and CFI to reinvigorate international recruitment and retention.

Third, once that plan is reviewed by NACRI and approved by the government, the value of the CRCs should be adjusted to account for their loss in value due to inflation since 2000 (estimated cost of $105 million). Staged over two to three years, the total cost is approximately $140 million.

The disciplinary distribution of CRC awards should be re-examined *pari passu* with the review recommended in **R5.1**. Closer scrutiny of internal nominations is needed to ensure that they reflect proven retention priorities. We also support setting specific targets for international recruitment, as recommended by the recent CRC evaluation.

Last, the Panel heard many concerns about the relative value of the CERC awards, and the uncertain sustainability of programs that focus such substantial resources around a single international recruit. The Panel acknowledges the quality of the CERCs who currently hold these awards, and the need for high-value awards to attract the brightest and best from around the world. However, the extant evaluations are not adequate. A detailed review of the relative cost-benefit of the CERC versus CRC programs should be undertaken in 2017 to determine where the investments should be directed for the greatest impact.

If the renewal of the CRC program is not sufficient in itself to improve international recruitment, then specific modifications of the program to that end may be a more sustainable strategy than the CERCs currently are likely to provide.

4.3.4 Facilities and Operations

The CFI Infrastructure Operating Fund (IOF) provides a one-time payment equivalent to 12 per cent of the total capital. This treatment contrasts with the partial funding of ongoing operating costs as is provided for MSIs. The large shortfall in coverage of the institutional costs of research means that these funds are not always available to individual researchers and teams that rely on small-scale equipment, leading to a productivity drain. The Government of Canada should **(R6.11)** accordingly mandate and fund CFI to meet the special operating needs of individual researchers with small capital awards. We benchmarked this need and estimated that approximately $30 million per year earmarked for the relevant awardees would ensure continuity of operations. To facilitate rapid implementation of this recommendation, this amount should be offset against recommended increases to the Research Support Fund (RSF) to render it costless to the federal government.

The much larger issue is strengthening the overall institutional fabric of Canadian research. All postsecondary research depends upon maintaining common-use equipment; meeting regulatory standards; regularly upgrading institutional computer services; keeping libraries stocked; cleaning, lighting, and heating laboratories and research space; and administering grant awards. Additional costs relate to funding the protection of intellectual property and the commercialization of technologies arising from the research. Two programs (CRCs and CFREF) allow the research grants themselves to cover a limited number of these charges. For the vast majority of research operating grants, no budget lines for F&A costs are allowed, and a separate program, the RSF, instead offers partial reimbursement. The current reimbursement level averages 21.6 per cent of eligible direct operating costs of grants and is formulaic and arbitrary. In contrast, the F&A reimbursement range for U.S. institutions is based on actual audited costs, and typically runs from approximately 40 to 60 per cent. Canadian institutions that have submitted detailed F&A expenses to U.S. funders are reimbursed at an average of 49.3 per cent. As a further example within Canada, the Government of Quebec has a sophisticated system of provincial research grants, and provides 60 per cent coverage for "heavy" or *lourde* research disciplines (e.g., medicine, engineering, chemistry) and 45 per cent for "light" or *légère* disciplines (e.g., history, psychology, communications).

Institutions of higher learning are absorbing these F&A costs by using tuition dollars and provincial grants that should be dedicated to their teaching and learning mission. Greater success in winning federal research funding leads to more intense budgetary pressure on the teaching and learning mission—a counter-productive arrangement.

The federal government's underfunding of F&A costs can also be linked to complaints that the Panel heard from researchers about the challenges in keeping equipment in top operating shape, and their frustration with obtaining adequate assistance for administration of research grants. Moreover, to be effective partners in innovation, universities must engage in knowledge translation, manage intellectual property, and partner with for-profit and non-profit enterprises. Without comparable levels of F&A funding, Canadian institutions will never be able to compete successfully with the technology transfer record of U.S. universities.

A further concern is that the RSF formula operates on a reverse income tax model that sees smaller institutions paid first at rates of between 40 to 80 per cent with the remainder of the funds distributed by equal proportion to institutions receiving more than $7 million a year in research funding. This helps small institutions cope with higher F&A costs due to diseconomies of scale. Concerns about the formula therefore focus on the fact that larger institutions are perversely penalized for success. However, the decline in reimbursement is actually fastest for smaller universities in a growth phase between $7 million and $30 million. The current RSF accordingly penalizes the "gazelle" institutions where research activities grow fastest in future.

The federal government currently pays about $369 million per year through the RSF on eligible grants totalling $1.708 billion (21.6 per cent). To take the current rate to 30 per cent would add approximately $143 million to the tri-council base. The corresponding numbers for 35 per cent and 40 per cent are $229 million and $314 million.

The Government of Canada should take immediate steps to reduce this accumulated and growing liability and to obtain a proper return on its research investments. Given the size of the shortfall and the priority that must be given to new operating grants for independent research, a staged approach would be needed to improve F&A reimbursement rates across both existing and new RSF-eligible grants. The recommended target **(R7.3)** is a reimbursement rate of 40 per cent for all institutions with more than $7 million per year of eligible funding. Current thresholds should be maintained to enable additional support for smaller institutions. As the size of the envelope of RSF-eligible operating grants grows, the funding of the RSF should be increased in lock-step to sustain the reimbursement rate of F&A costs on a trajectory towards this 40 per cent goal.

As the program moves to more adequate levels of reimbursement, closer oversight and reporting will be required. Phased growth in reimbursement rates has the advantage of offering time for the granting councils, CFI, and RSF Secretariat to work with universities and research institutes on mechanisms that ensure full transparency for the use of these funds, with priority given to expenditures that improve the daily productivity and ongoing success of Canadian scientists and scholars.

Last, the federal government's RSF strategy represents rational leverage. Federal grants are eagerly sought and welcomed by researchers; institutions, provinces, benefactors, and fee-paying university students have continued for decades to subsidize the federal research efforts. However, while this has allowed the federal government to sustain a leadership role based on fractional funding in an area of shared jurisdiction, it has also adversely affected the funding of the teaching and learning mission of the nation's universities, and constrained the quality of the research environment for our scholars and scientists. We applaud federal leadership as essential but believe that, at 23 per cent of overall HERD spending, the Government of Canada's fractional funding has fallen to unsustainable levels. Failure to act on this issue, in concert with improvements in direct funding of operating grants, will also, for reasons given, sharply worsen the situation. In brief, augmenting F&A reimbursement rates is an essential part of our plan.

5. Conclusion

We conclude that the recent erosion of Canada's research competitiveness is linked to changes in federal funding for extramural research that have both constrained funding per researcher, and directed funding preferentially to priority-driven and partnership-oriented research. The situation has been exacerbated by a policy shift in favour of new programs that focus resources on a limited number of individuals and institutions, without commensurate reinvestment to lift frontline research more broadly or sustain the value of existing programming. While Canada's HERD ratio is high, federal sources account for less than 25 per cent of total HERD, and we are now an outlier among nations in the extent to which institutions underwrite the costs of research.

These challenges have been exacerbated by suboptimal coordination and collaboration among the four pillar agencies. The variations in governance, administrative practices, and funding priorities within and across agencies cannot be explained by disciplinary differences or by the needs of the relevant research communities.

We have accordingly recommended substantial improvements in governance, oversight, and advice. These include creation, by legislation, of an independent National Advisory Council on Research and Innovation. NACRI in tandem with Canada's new CSA would advise on evaluations for all programming in both the research and innovation spheres, including proposals for new agreements with external entities and renewals of extant agreements. An external expert group should be convened by the CSA to improve the oversight of national-scale MSIs. The Panel has also recommended wide-ranging improvements to oversight and governance of the four agencies, including the appointment of a Four Agency Coordinating Board chaired by the CSA. The Board would play a key role in driving a number of priorities identified in the report, targeting the effectiveness, accountability, efficiency, and equity of various elements of the system.

Concurrent with these changes to governance and improvements to accountability, major reinvestments are urgently required. We envisage a four-year phase-in involving base increases averaging 9 per cent each year. Many of the specific increases are contingent on approval of plans to ensure efficient use of new funds. New spending would be balanced across:

- investigator-led research operating grants (the highest priority);
- enhanced personnel supports for researchers and trainees at different career stages;
- targeted spending on infrastructure-related start-up (small equipment) and operating costs (Big Science facilities); and
- enhancement of the environment for science and scholarship by improved coverage of the institutional costs of research.

The cumulative base increase would move annual spending in steady-state across the four agencies and related entities from approximately $3.5 billion to $4.8 billion. The steady-state increase in base by the end of four years amounts to 0.4 per cent of the Government of Canada's annual budget. This commitment would both affirm renewed federal leadership and greatly strengthen the foundations of Canadian research. Given global competition, the role of research in underpinning innovation and educating innovators, the need for evidence to inform policy-making, and the current unsettled conditions in the research ecosystem, the Panel firmly believes that this commitment is also among the very highest-yield investments in Canada's future that any government could make.

LIST OF RECOMMENDATIONS WITH ELABORATIONS

This list of recommendations is drawn directly from the Panel's final report. The first number refers to the chapter in which the recommendation appears, and the second to the order of appearance within that chapter.

As readers of this summary document may not have immediate access to the full report, we have annotated this list of recommendations with text that elaborates on them in the report. The result is a fair degree of overlap in wording with the Executive Summary. However, we believe that this format is complementary and may be useful, particularly to those using this shorter document as a reference.

We do caution, however, that this account of the recommendations is abridged. We recommend that no definitive interpretation of the recommendations be made without studying the relevant sections of the full report.

Last, not all recommendations below have accompanying text. This occurs in two instances. The first is where the recommendations are so specific as to stand readily on their own. The second is where the Panel is urging formulation of plans or assessments by federal agencies, and has limited itself to setting out broader considerations or enabling parameters for those processes. Where more specific parameters are delineated in text around recommendations, we have appended it here. The absence of elaboration is therefore unrelated to the importance the Panel accords any given recommendation. For example, Recommendation 5.6, relating to enhanced support for early career researchers, speaks to an area of very high priority for the Panel.

Recommendation 1.1

Consistent with the recommendation by the Advisory Council on Economic Growth, the Government of Canada should undertake a wide-ranging and multi-departmental review of innovation-related programming, including both direct and indirect supports for business research and development.

The Panel believes that the review must be careful not only to include programs under tri-council aegis that have been excluded from our review, but also those subject to external contribution agreements, such as Mitacs and the innovation programming inside Genome Canada. If a new CSA has been appointed by the time of the review, he/she may be a useful contributor to assessments involving entities with a mixed mission of supporting independent research and research responsive to the missions of social or business enterprises.

Recommendation 4.1

The Government of Canada, by an Act of Parliament, should create a new National Advisory Council on Research and Innovation (NACRI) to provide broad oversight of the federal research and innovation ecosystems.

Among NACRI's responsibilities would be:

- advice to the Prime Minister and Cabinet on federal spending as well as broad goals and priorities for research and innovation;
- improving the coordination and strategic alignment of different elements of federal support for research and innovation;

- evaluation of the overall performance of the extramural research enterprise;
- public reporting and outreach on matters determined by the Council;
- confidential or public advice on other matters as requested by the Government of Canada;
- a foresight function for research and innovation;
- in concert with the CSA, ongoing advice on (i) the effectiveness of extramural research agencies and the intramural research groups, and (ii) the facilitation of collaboration among them and with the extramural research realm;
- advice on large-scale domestic and international research infrastructure projects, and on unusual requests for research support that fall outside the usual remit of the granting councils and CFI; and
- liaison with parallel bodies in provinces and territories and internationally as appropriate.

Recommendation 4.2

The Science, Technology and Innovation Council should be wound down as NACRI is established.

Recommendation 4.3

NACRI should have 12 to 15 members, appointed through Orders in Council, comprising distinguished scientists and scholars from a range of disciplines as well as seasoned innovators with strong leadership and public service records from the business realm and civil society. Domestic members should be drawn from across Canada and reflect the nation's diversity and regions.

Recommendation 4.4

An external member should hold the Chair of NACRI with the CSA serving as Vice Chair. NACRI should be supported by a dedicated secretariat working within the larger expert team supporting the CSA.

Recommendation 4.5

The Privy Council Office, working with departmental officials and the newly appointed CSA, should examine mechanisms to achieve improved whole-of-government coordination and collaboration for intramural research and evidence-based policy-making.

Recommendation 4.6

As a council of senior volunteers with a broad mandate of national importance, NACRI should have a publicly acknowledged working connection to the Prime Minister/PMO, parallel to that established for the CSA. NACRI should report to and interact most directly with both the Minister of Science and the Minister responsible for Innovation and Economic Development. It should also have open channels of communication with the Minister of Health and other ministers of key departments involved in intramural and extramural research.

To elaborate on the last point, while interpersonal relationships involving NACRI's members and senior government officials are important, more organized channels for interaction are needed. Various options to facilitate those interactions can be imagined and are not mutually exclusive. They include:

- creation of a Cabinet committee or modification of an existing one to enhance overall coordination while also serving as a specific point of connection for NACRI;
- constitution by the key ministers of a working committee to meet with NACRI or its Chair on a quarterly basis;

- regular interchanges with senior Finance officials; and
- ex-officio membership on NACRI for relevant ministers or their deputies.

Recommendation 4.7

A Special Standing Committee on Major Research Facilities should be convened by the CSA and report regularly to NACRI. The committee would advise NACRI and the Government of Canada on coordination and oversight for the life cycle of federally supported MRFs.

Recommendation 4.8

Ongoing interactions and annual in-person meetings should be established to strengthen collaborative research relationships among federal, provincial, and territorial departments with major intramural or extramural research commitments. The CSA, with advice from NACRI, should take the lead in promoting a shared agenda on matters of national concern, such as human resource planning to strengthen research and innovation across Canada.

Recommendation 4.9

The Government of Canada should propose and initiate planning for a First Ministers' Conference on Research Excellence in 2017. The conference would celebrate and cement a shared commitment to global leadership in science and scholarly inquiry as part of Canada's sesquicentennial celebrations.

Recommendation 4.10

The Ministers of Science and Health should mandate the formation of a formal coordinating board for CFI, CIHR, SSHRC, and NSERC, chaired by the CSA. The membership of the new Four Agency Coordinating Board would include the four agency heads, departmental officials, and external experts. Reporting to the Ministers of Science and Health, the Coordinating Board would expeditiously determine and implement avenues for harmonization, collaboration, and coordination of programs, peer review procedures, and administration.

External members would be distinguished individuals with an understanding of the extramural research ecosystem and deep experience with frontline research issues. Obvious priorities would be:

- improving overall coordination;
- addressing equity and diversity concerns and systemic biases in peer review;
- enabling more nimble support of multidisciplinary research;
- better aligning capital and operating support;
- addressing orphan disciplines that do not have a council "home";
- consolidating back-office functions to the greatest extent possible; and
- developing a coordinated approach to public outreach about exciting developments in Canadian research that informs citizens and inspires children and youth.

Recommendation 4.11

The Government of Canada should undertake a comprehensive review to modernize and, where possible, harmonize the legislation for the four agencies that support extramural research. The review would clarify accountabilities and selection processes for agency governing bodies and presidents, promote good governance and exemplary peer review practices, and give priority to inter-agency collaboration and coordination.

One of the key goals of this review would be to reframe legislation with an enabling orientation that would allow for updating and improvements to governance without the need for a return to Parliament. Among other goals, the review should:

- address governing council/board composition, with appropriate attention to the balance of expertise and need to reflect the diversity of Canada and the research community;
- explicitly mandate that the agencies have mechanisms that yield and publicize unbiased and up-to-date evidence on the views of the accessibility and effectiveness of their programs from the perspective of researchers at distinct career stages; and
- examine specifically what changes are appropriate to CFI's governance if and when that agency receives standard A-base funding rather than intermittent allocations of one-time funding.

Recommendation 5.1

NACRI should be asked to review the current allocation of funding across the granting councils. It should recommend changes that would allow the Government of Canada to maximize the ability of researchers across disciplines to carry out world-leading research. Particular attention should be paid to evidence that ongoing program changes have adversely affected the funding opportunities for scholars in the social sciences and humanities.

Recommendation 5.2

The Government of Canada should direct the new Four Agency Coordinating Board to develop and harmonize funding strategies across the agencies, using a lifecycle approach that balances the needs and prospects of researchers at different stages of their careers.

Integral to the development of such a strategy is improvement in information and collaboration.

- A common tri-council definition of ECRs should take into account gender differences in career paths (e.g., years since PhD or first independent research appointment must take into account parental leaves).
- The involvement of CFI is crucial so start-up capital for ECRs can be aligned with operating and personnel supports provided by the relevant granting council.
- The four agencies should collaborate to improve data collection and analysis to support a lifecycle funding strategy, and engage in standardized public reporting of results.
- Granting councils should connect with universities/research institutions seeking active collaboration to align their support of early and mid-career researchers, and ensure productive transitions for researchers in the final stages of their careers.
- Comparative analysis, benchmarking, and publication of success rates in competitions are essential.

Recommendation 5.3

The new Four Agency Coordinating Board should create a mechanism for harmonization as well as continuous oversight and improvement of peer review practices across the three councils and CFI.

Among the desired outcomes would be:

- a common set of guiding principles or values for peer review;
- mechanisms for more effective adjudication of multidisciplinary research;
- a streamlined process for submitting grants, starting with rapid and major improvements to the ease of use and agency harmonization of the Canadian Common CV; and
- support for experimentation and evaluation to study new approaches to peer review, including use of iterative review processes.

Recommendation 5.4

The Four Agency Coordinating Board should develop consistent and coordinated policies to achieve better equity and diversity outcomes in the allocation of research funding while sustaining excellence as the key decision-making criterion. This priority intersects efforts to improve peer review practices and requires a multipronged approach.

That multipronged and coordinated approach involves:

- education and training on bias for peer reviewers;
- diversity in peer review panels;
- better data collection and transparency;
- consistent metrics and reporting plans to detect bias;
- tailored peer review mechanisms for specific research groups; and
- constant evaluation for degree of attainment of desired objectives and any unintended adverse consequences.

Recommendation 5.5

The federal ministers responsible should consider hard equity targets and quotas where persistent and unacceptable disparities exist, and agencies and institutions are clearly not meeting reasonable objectives.

Recommendation 5.6

The four agencies should examine best practices in supporting early career researchers, augment their support of them consistently across disciplines, and track and report publicly on the outcomes.

Recommendation 5.7

The three granting councils should collaborate in developing a comprehensive strategic plan to promote and provide long-term support for Indigenous research, with the goal of enhancing research and training by and with Indigenous researchers and communities. The plan should be guided by the Truth and Reconciliation Commission's recommendations on research as a key resource.

The Panel will not presume to elaborate on the recommendations of the Truth and Reconciliation Commission, but rather encapsulate specific elements and considerations as follows:

- development of a statement of principles for Indigenous research;
- working with Indigenous advisors to create mechanisms that build inclusiveness, recognition of distinctiveness, and accountability into the structures and processes of the four agencies and related institutions;
- increased support for research and training by and with Indigenous researchers and communities;
- improved recognition of efforts related to community-based research and clarity on the Indigenous knowledge process;
- reconsideration of research support mechanisms, such as the composition of peer review panels;
- greater understanding of the role of Indigenous knowledge;
- greater flexibility in eligible costs and timelines to enable strong and ongoing community engagement; and
- provision of opportunities for iterative proposal submissions in peer review.

Recommendation 5.8

NACRI should be mandated not only to review proposals to create new third-party delivery organizations, but also to assess ongoing activities of all existing third-party organizations that receive federal support. It should guide their formal periodic review processes and advise the Government of Canada on the continuation, modification, or termination of their contribution agreements.

Recommendation 5.9

When the intent is to support independent research, requirements for matching funds should be used sparingly and in a coordinated and targeted manner. In general, matching requirements should be limited to those situations where the co-funder derives a tangible benefit.

Recommendation 6.1

The Government of Canada should rapidly increase its investment in independent investigator-led research to redress the imbalance caused by differential investments favouring priority-driven research over the past decade.

Recommendation 6.2

The Government of Canada should direct the Four Agency Coordinating Board to amend the terms of the NCE program so as to include the fostering of collaborative multi-centre strength in basic research in all disciplines.

To implement this recommendation for the NCE program, the Panel suggests the following:

- Evaluation criteria for KTEE (i.e., knowledge translation, exploitation, and exchange) should be lessened or dropped, for at least some classic NCEs, as they disadvantage basic research in most disciplines, not least SSH.
- NCEs with a basic research mission should be allowed to participate in open competitions for refunding beyond current program limits. The requirement that commercially focused networks should plan to transition out of government funding after a certain time makes less sense for basic research where few partners are likely to provide continuing funding.
- A portion of the new funding allocated to direct project financing should be used for the creation of new NCEs, some of which should be at a smaller scale. This would be of greater use for certain disciplines, e.g., SSH or mathematics.
- The requirement for a corporate structure to oversee the activities of an NCE makes good sense when commercial or other outside parties are involved, but it should not be a requirement for NCEs composed entirely of university researchers pursuing basic research.

Recommendation 6.3

The Government of Canada should direct the granting councils to undertake an interim evaluation of the CFREF program before the third wave of awards is made. The CSA and NACRI should be engaged in the design of the review. The results would guide a decision on whether to launch or defer the program's third round, but not impede the fulfilment of existing commitments.

Recommendation 6.4

The Government of Canada should mandate the Four Agency Coordinating Board to develop multi-agency strategies to support international research collaborations and modify existing funding programs so as to strengthen international partnerships.

In developing approaches to improve support for international research, the granting councils should consider:

- the need for dedicated funding for international research collaborations;
- improved mechanisms to collect and report data on international research activities; and
- proactive and coordinated efforts to engage with international funding partners to create opportunities for Canadian researchers.

Recommendation 6.5

The Government of Canada should mandate the Four Agency Coordinating Board to develop strategies to encourage, facilitate, evaluate, and support multidisciplinary research.

In this work, the Panel suggests consideration of the following elements:

- the need for strengthened systems within granting councils to adjudicate multidisciplinary research proposals;
- creation of programs to support multidisciplinary research that spans the boundaries of granting councils;
- loosening of restrictions on the use of grant funds to facilitate the pursuit of broader lines of inquiry;
- more collaborative approaches among granting councils to take joint responsibility for researchers at the edges of their respective mandates; and
- improved mechanisms to support large-scale multidisciplinary research.

Recommendation 6.6

The Government of Canada should mandate the granting councils to encourage and better support high-risk research with the potential for high impact.

In reviewing their programs and policies, the granting councils should consider the following elements:

- making support for high-risk, high-reward research an explicit part of their missions;
- amending funding program criteria to ensure that a meaningful portion of grants goes to riskier projects; and
- providing training to peer reviewers to reduce potential bias against high-risk research.

Recommendation 6.7

The Government of Canada should mandate the granting councils to arrive at a joint mechanism to ensure that funds and rapid review mechanisms are available for response to fast-breaking issues.

Recommendation 6.8

The Government of Canada should provide CFI with a stable annual budget scaled at minimum to its recent annual outlays.

Recommendation 6.9

The Government of Canada should consolidate the organizations that provide digital research infrastructure, starting with a merger of Compute Canada and CANARIE. It should provide the new organization with long-term funding and a mandate to lead in developing a national DRI strategy.

Recommendation 6.10

The Government of Canada should mandate and fund CFI to increase its share of the matching ratio for national-scale major research facilities from 40 to 60 per cent.

Careful thought must be given to:

- which infrastructures should qualify for this new proposed arrangement;
- how the operating costs of new facilities would be covered over their life cycles; and
- the specific needs of small-scale specialized research equipment.

Recommendation 6.11

The Government of Canada should mandate and fund CFI to meet the special operating needs of individual researchers with small capital awards.

Recommendation 7.1

The Government of Canada should direct the Four Agency Coordinating Board to oversee a tri-council process to reinvigorate and harmonize scholarship and fellowship programs, and rationalize and optimize the use of current awards to attract international talent.

Specific elements and considerations to achieve these goals include:

- creation of harmonized tri-council programs to award and administer all doctoral and postdoctoral fellow (PDF) awards, similar to the harmonized program for master's scholarships;
- more harmonized levels of support (in both value and duration) for all doctoral and PDF awards;
- elimination of restrictions on international portability of doctoral and PDF awards to Canadians, with monitoring of the results; and
- refocusing of the Vanier and Banting programs as tools for international recruitment.

Recommendation 7.2

The Government of Canada should renew the CRC program on a strategic basis in three stages:

1. Restore funding to 2012 levels, upon development of a plan by the granting councils and Chairs Secretariat to allocate the new Chairs asymmetrically in favour of Tier 2 Chairs, and increase the uptake of available funds through improved logistics in managing numbers and reduced delays in awarding Chairs;
2. Direct the granting councils to cap the number of renewals of Tier 1 Chairs and, in concert with universities and CFI, develop a plan to reinvigorate international recruitment and retention, for review by NACRI and approval by the government; and
3. On approval of that plan, adjust the value of the CRCs to account for their loss in value due to inflation since 2000.

Among the considerations in formulating the above-noted plans should be:

- a major effort to increase the number of active Chairs at any one time to as close to 2,000 as possible;
- re-examination of the disciplinary distribution of CRC awards;
- detailed review of the relative cost-benefit of the CERC versus CRC programs to determine where the investments should be directed for the greatest impact;
- strategic evaluation to determine why the attrition rate for chairholders recruited from abroad has been significantly higher than Canadian chairholders;
- closer scrutiny of nominations from within a university to ensure that new internal awards reflect retention priorities; and
- setting of specific targets for international recruitment, as recommended by the recent CRC evaluation.

Recommendation 7.3

The Government of Canada should gradually increase funding to the RSF until the reimbursement rate is 40 per cent for all institutions with more than $7 million per year of eligible funding. Current thresholds should be maintained to enable additional support for smaller institutions. As the size of the envelope of RSF-eligible operating grants grows, the funding of the RSF should be increased in lock-step to sustain the reimbursement rate of F&A costs on a trajectory towards this 40 per cent goal.

BRIEFING NOTE TO THE MINISTER

The Jacques Cartier and Champlain Bridges Inc Budget 2018 request: Analysis of planned projects

(For Information)

ISSUE

- The purpose of this note is to provide you more specific information about three projects in the Budget 2018 funding request for the Jacques Cartier and Champlain Bridges Inc (JCCBI).

OVERVIEW

- In early October 2017, Finance Canada sent out the call for items to be included in Budget 2018. INFC worked with JCCBI to provide estimates for JCCBI's funding request for 2018-2019 to 2022-2023 to continue the repair, maintenance and operation of the federal structures in Montreal.
- Based on these estimates, [redacted]
- JCCBI indicated that the work planned over the period of 2018-2019 to 2022-2023 includes:
  - Painting and repairs to the steel structures of the Jacques Cartier Bridge and the Honoré Mercier Bridge; repairs to the piers, field work and paving of the approaches to the Honoré Mercier Bridge; repairs to the piers, beams and abutments of the Estacade; and paving of the approaches to and the replacement of the waterproof seal on the Melocheville Tunnel.
  - Repairs to the pier caps and interior girders to ensure the Champlain Bridge remains safe and operational until the New Champlain Bridge is in service.
  - Provisions for works related to the bicycle path opening on the Jacques-Cartier Bridge during winter.
  - Major investments related to the Île Sainte-Hélène Pavilion and to the North approach of the Jacques Cartier Bridge (replace a section of the bridge, solve drainage issues, increase security around the bridge and ensure appropriate urban integration of the bridge in collaboration with the city of Montreal).
  - A major program to install ITS systems and tools in general.
  - Continued operation of the "Solution Bonaventure" systems related to environmental protection (East and West Sector of the Technoparc).
  - Deconstruction of the Champlain Bridge (pending a decision in fall 2017 on who will undertake this project).
- INFC sought further information on three activities that JCCBI proposed in the strategic plan to confirm that that they were within JCCBI's mandate to ensure safe and efficient transit on the infrastructure they manage. These activities are: 1) the reconfiguration and urban

revitalisation of the north approach to the Jacques Cartier Bridge; 2) the development of the Ile Sainte-Hélène Pavilion and; 3) work of the Center for Infrastructure Innovation (CII). Further details about these activities can be found in Annex 1.

- The total cost estimates for these activities over 2018-2019 to 2022-2023, including new funding requested through Budget 2018 and funds already in JCCBI's reference levels are the following:
    - North Approach of the Jacques Cartier Bridge - $74M
    - Revitalization of the Ile Sainte Hélène Pavilion - $56M
    - CII-$29M

CONSIDERATION

- The work planned on the north approach to the Jacques Cartier Bridge is mostly safety related and clearly linked to JCCBI's mandate. The concrete frames have reached the end of their lifespan. JCCBI has undertaken reinforcement work in order to add a few more years of life to this section of the bridge in order to coordinate with the work the City of Montreal is undertaking on the roadway leading to the bridge. In addition, the reconfiguration of the approach will ensure the safety of pedestrians and cyclists. This project also includes work to revitalize the land under the north approach in order to ensure the integration of this space with the City of Montreal's revitalization of residential neighbourhood of Sainte-Marie.

- JCCBI's plans for the revitalization of the Ile Sainte-Hélène Pavilion are also directly related to its mandate. The goal for the revitalization work is to ensure the longevity of the structure as it acts as the main abutment of the central part of the Jacques Cartier Bridge, preserve its heritage status as an Arts Deco building [redacted]

- The CII was created in 2015 with the mission of developing innovative and sustainable solutions and deploying better practices to extend the useful life of JCCBI's infrastructure. JCCBI has partnered with universities to undertake some of this research (see list of research projects in Annex 1). JCCBI had referred to the CII as two phases: 1) research and 2) knowledge sharing and technology transfer. The CII has been in operation for two years and knowledge transfer is a normal part of the research cycle. JCCBI has estimated $799K over 5 years for the knowledge sharing and technology transfer portion of the work, which represents less than 0.001% of JCCBI's total funding request (excluding deconstruction of the Champlain Bridge) and less than 0.03% of the total work of the CII.

[redacted]

CONCLUSION

- INFC has analysed the activities proposed by JCCBI and is of the opinion that the work on the North approach to the Jacques Cartier Bridge and the work to revitalise the Ile Sainte-Helene Pavilion contribute to ensuring the safety of the Jacques Cartier Bridge and fall within JCCBI's mandate.

- JCCBI's mandate does not specifically include knowledge sharing, however all the research projects under the CII are directly related to ensuring the safety of JCCBI's structures. JCCBI requires the support of the Minister of Infrastructure to proceed. INFC will continue to track the activities of the CII through the yearly Corporate Plan process in order to confirm that the research projects undertaken by JCCBI continue to fall within their mandate.

- INFC will request that JCCBI include additional details and cost breakdowns [redacted] for the revitalisation of the Ile Sainte-Hélène Pavilion in its 2018-2019 to 2022-2023 Corporate Plan in order to inform decision making about future uses for the Pavilion.

[redacted]

Kelly Gillis
Deputy Minister
Infrastructure and Communities

Date

Attachment: Annex 1 – Description of JCCBI's projects

Annex 1 – Description of JCCBI's projects

Redevelopment of the lands under the North Approach to the Jacques Cartier Bridge:

The north approach to the Jacques Cartier Bridge is located in the Sainte-Marie neighbourhood of Montreal, a residential sector with buildings in close vicinity to the bridge approaches. Currently, the lands under the bridge (which are owned by JCCBI) are vacant lots and scattered parking areas. In recent years, the City of Montreal has focused on revitalizing the neighbourhood and a preliminary project was carried out to assess possibilities to better integrate the lands under the bridge into the urban environment. This project was announced in April 2017 by the Mayor of Montreal and the Parliamentary Secretary to the Minister of Infrastructure and Communities and Member of Parliament for Ville-Marie—Le Sud-Ouest—Île-des-Soeurs. Public consultations were carried out on April 20, 2017 and the plans were well received.

The project includes replacement of the concrete frames of a section of the bridge to ensure the longevity of the structure and align it with Montreal's plans for the roadway, improve the drainage of water in the area off the bridge and direct it to a retention basin, and improve the geometry of the approaches to the bridge to make access safer and easier for cars, cyclists and pedestrians. The project also includes urban revitalization plans to create a park, green space and a community hub for residents of Sainte-Marie.

Development of the Ile Sainte-Hélène Pavilion

The Ile Sainte-Hélène Pavilion is located in the center of the Jacques Cartier Bridge, on île Sainte-Hélène. This structure acts as central abutment to the main bridge and comprises two (2) access ramps (upstream and downstream) to access Ile Sainte-Hélène. This building is currently used for minimal and temporary storage and the large interior spaces of this structure are unused. Only the pedestrian crossing, which ensures the link under the bridge deck between the sidewalk on the downstream side and the multifunctional bike path on the upstream side is used.

JCCBI has planned to rehabilitate the Ile Sainte-Hélène pavilion and to subsequently update the building to [redacted]

The Ile Sainte Hélène Pavilion is an integral part of the Jacques Cartier Bridge and must be maintained in good condition in order to ensure a safe passage on the entire structure. Following completion of the rehabilitation work, the building will need to be heated and ventilated to keep the interior materials in optimum condition. In addition, [redacted]

JCCBI has determined that the work required includes the completion of interior structural work, rehabilitation of the building's exterior (windows, doors, tile mosaics), work to reduce the noise and vibration, the addition of mechanical systems (fans, heating and fire protection), integration

of the lands around the Pavilion and management of water running off the Jacques Cartier Bridge. [redacted]

Center for Infrastructure Innovation

JCCBI created the Center for Infrastructure Innovation (CII) in 2015. The work of the CII is well underway with several university-partnered research projects such as studies of ultra-high-performance fiber-reinforced concretes (UHPC) and the assessment of the seismic performance and wind resistance of JCCBI's structures. This research is important to ensure the safety of JCCBI's structures.

Part of the work of the CII focuses on technology transfer and knowledge sharing of the research JCCBI is leading. JCCBI has the following goals:

- Build a network and alliances with the academic and government communities and consulting-engineering to identify and select applied research and technical development projects in collaboration with the other departments of the Corporation;
- Document the innovative initiatives carried out by JCCBI over the years since 1990 on all its bridges and other infrastructures in order to create a compendium that gathers information relevant to the Corporation's reputation;
- Exchange with the other project authorities in Canada and elsewhere to compare the bridge technical management practices used to target best practices.

The following is a listing of the applied research and technical development projects under the CII:

Applied Research Projects	
Use of ultra-high-performance fiber-reinforced concretes (UHPC) to sustainably reinforce and rehabilitate bridge piers (Polytechnique Montréal).	2016-2017
Evaluation of the shear reinforcement of girders by bonding carbon fiber reinforced polymer strips (McGill University).	2016-2017
Use of ultra-high-performance fiber-reinforced concretes to sustainably reinforce and rehabilitate bridge girders and slabs (Polytechnique Montréal).	2016-2017
Research project on the environmental monitoring of the illumination of the Jacques Cartier Bridge (Laval University).	2016-2019
Technical Development Projects	
Study on the assessment of the opportunities of extending the service life of the Jacques Cartier Bridge until 2070.	2016-2018
Studies of the opportunities of innovating and improving the structure's protection systems.	2016-2018
Jacques Cartier Bridge, sections 2 to 9, consultancy services for the seismic performance evaluation study and earthquake-resistant retrofit preliminary design study.	2017-2020
Jacques-Cartier Bridge, Section 7, consultancy services for wind tunnel testing and wind load capacity study	2017-2018
Bonaventure Expressway, section 13, Clément Bridge, consultancy services for the seismic performance study.	2017-2020

BRIEFING NOTE TO THE MINISTER

LETTER TO CHIEF EXECUTIVE OFFICER OF PPP CANADA [redacted]

(For Signature)

ISSUE

- As per the PPP Canada briefing of last week, attached is a letter to Mr. John McBride, Chief Executive Officer of PPP Canada, for your signature. [redacted]

BACKGROUND

- On November 3, 2017, you announced the Government of Canada's intention to dissolve PPP Canada. As the public-private partnership model is widely used by jurisdictions across Canada, PPP Canada has fulfilled its mandate.

- On October 31, 2017, you wrote to the effective interim Chair, Mr. Bill McMackin, with a copy to Mr. McBride, informing him of the dissolution and requesting, [redacted]

- Mr. McBride was appointed by the Governor in Council (GiC) on February 16, 2009. His term was set to end on February 16, 2019; it will now end upon PPP Canada's dissolution on March 31, 2018 [redacted]

[redacted]

RECOMMENDATION

- It is recommended that you sign the attached letter to Mr. McBride.

Kelly Gillis Deputy Minister Infrastructure and Communities	Date

___ I approve.	___ I do not approve.	___ For discussion.	
Amarjeet Sohi, P.C., M.P. Minister of Infrastructure and Communities			Date

Attachment:

Annex A – Letter to Mr. John McBride, Chief Executive Officer of PPP Canada

ATIA - 19(1)

SECRET

Mr. John McBride
Chief Executive Officer
PPP Canada
100 Queen Street, Suite 630
Ottawa, Ontario K1P 1J9

Dear Mr. McBride:

Further to my recent letter to Mr. Bill McMackin concerning the Government of Canada's intention to dissolve PPP Canada by March 31, 2018, [redacted]

As you are aware, the intent is for Infrastructure Canada to take over the administration and oversight of the existing 25 projects under the P3 Canada Fund, by March 31, 2018, by which time PPP Canada will be dissolved. [redacted]

I am aware that the dissolution of PPP Canada will have a direct impact on your appointment as Chief Executive Officer, which was approved by the Governor in Council on December 17, 2013. [redacted]

Thank you once again for your commitment over the years in helping PPP Canada fulfill its mandate in developing the public-private partnership market in Canada.

Yours sincerely,

Amarjeet Sohi, P.C., M.P.

CORRESPONDENCE STANDARDS
(Last updated: November 10, 2017)

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PARAGRAPHS FOR INTRODUCTION OF LETTER

For Responses from the Minister
(Incoming letter or email addressed to the Minister)

Thank you for your [letter or email] of [Month Day, Year], regarding the [proposed project/project name] for [XXX] in [Location].
Note: If it has been more than 30 days since the incoming was received in the Minister's Office, include the following sentence at the end of the opening paragraph:
Please accept my apologies for the delay in responding.

OR

For Referrals from the Office of the Prime Minister
(Incoming letter or email addressed to the Prime Minister)

I am writing in response to your [letter or email] of [Month Day, Year], to the Prime Minister, regarding [Project Name] or [federal investment in infrastructure].
Note: Do not add apology line when responding to a referral.

OR

For Referrals from other Ministers' Offices
(Incoming letter or email addressed to another federal Minister)

I am writing in response to your [letter or email] of [Month Day, Year], to my colleague the Honourable [Surname Name], Minister of [Department], regarding [Project Name] or [federal investment in infrastructure].
Note: Do not add apology line when responding to a referral.

OR

For Direct Replies from Assistant Deputy Ministers
(Incoming letter or email addressed to the Minister)

I am writing in response to your [letter or email] of [Month Day, Year], [addressed / forwarded] to the Honourable Amarjeet Sohi, Minister of Infrastructure and Communities, regarding [Project Name] or [federal investment in infrastructure]. The Minister has asked me to reply on his behalf.
Note: Do not add apology line when responding on behalf of the Minister.

OR

For Direct Replies from Assistant Deputy Ministers
(Incoming letter or email addressed to the Prime Minister)

I am writing in response to your [letter or email] of [Month Day, Year], to the Prime Minister, regarding [Project Name] or [federal investment in infrastructure]. The Honourable Amarjeet Sohi, Minister of Infrastructure and Communities, has asked me to reply on his behalf.
Note: Do not add apology line when responding on behalf of the Minister.

PARAGRAPHS FOR CORRESPONDENCE REQUESTING THAT A PROJECT BE FUNDED UNDER INFRASTRUCTURE CANADA PROGRAMS

For All Correspondence

The Government of Canada has a long history of making strategic investments in a wide range of infrastructure categories. Infrastructure is the foundation of sustainable and inclusive communities—it removes barriers, brings people together and allows all Canadians to be active participants in their community. Moreover, good infrastructure fosters an environment where the best of Canadian innovation can grow.

The Government of Canada is investing more than $180 billion under the long-term Investing in Canada Plan. Our priority is to promote infrastructure that will create good, well-paying jobs that can help the middle class grow and prosper. Key areas for investment include public transit, green and social infrastructure, transportation infrastructure that supports trade, and infrastructure in rural and northern communities.

Through Budget 2017, the Government has also announced plans to invest $20.3 billion towards public transit that would transform the way Canadians live, move and work. Green infrastructure projects will also be prioritized through an investment of $16.9 billion over 11 years that will reduce greenhouse gas emissions, deliver clean water, safely manage wastewater, and help communities prepare for challenges that result from climate change.

Infrastructure Canada has started discussions with its partners in [P/T] to sign a long-term agreement that would see $[provincial allocation] invested in infrastructure over the next 11 years.

Commented [LD1]: Newfoundland and Labrador . $555,842,846
Prince Edward Island . $366,977,323
Nova Scotia . $828,493,161
New Brunswick . $673,217,569
Quebec* . $7,535,937,919
Ontario** . $11,846,483,456
Manitoba*** . $1,172,076,153
Saskatchewan . $896,323,008
Alberta . $3,397,857,038
British Columbia *** . $4,129,680,161
Yukon . $445,617,300
Northwest Territories . $570,776,826
Nunavut . $566,761,621

Additional details and updates on Canada's future infrastructure investments and funding programs can be found on the Department's website at www.infrastructure.gc.ca.
Note: This sentence should not be used for replies to VIPs, as per MINO and DMO instructions of March 2017.

For Water/Wastewater projects if will be completed by 2018 or timing unknown

The [include if needed: $2-billion] Clean Water and Wastewater Fund encourages economic growth and supports sustainable, livable communities. This Fund primarily focuses investments on meeting immediate priorities for clean water and wastewater to support a cleaner and healthier environment for communities while laying the groundwork for longer-term strategic investments that will keep pace with the rapid growth of Canadian cities.

For Public Transit projects if will be completed by 2018 or timing unknown

The [include if needed: $3.4-billion] Public Transit Infrastructure Fund encourages economic growth and supports sustainable, livable communities. This Fund primarily supports investments that meet immediate public priorities, including projects that improve the state of good repair of public transit, support system optimization and efficiency, increase asset management capacity, and focus on design and planning for future expansion of public transit systems. It also lays the groundwork for longer-term strategic investments in public transit that will keep pace with the rapid growth of Canadian cities.

For either Water/Wastewater or Public Transit projects and if response incorporates either of two previous paragraphs

Your proposed project for a [XXX] in [Location] may be eligible for funding under this new program if it meets program requirements and can be completed by March 2018. In addition, [XXX] [name of category/categories] [is/are] eligible [category/categories] under the Provincial-Territorial Infrastructure Component of the New Building Canada Fund.

Under the new agreement, proposed projects must first be prioritized by the province before they are submitted to Infrastructure Canada for consideration once the agreement is signed. I would encourage you to provide your proposal to [Name of Ministry and Province] so that it may determine whether the project should be prioritized for funding consideration under the Public Transit Infrastructure Stream, the Green Infrastructure Stream, the Community, Culture and Recreation Infrastructure Stream, or the Rural and Northern Communities Infrastructure.

For either Water/Wastewater or Public Transit projects if province/territory has fully allocated their entire allocation for the program and all projects have not yet been approved

The proposed project may be eligible for funding under the Clean Water and Wastewater Fund or the Public Transit Infrastructure Fund. Under these programs, provinces and territories receive an allocation, prioritize projects, and submit the ones eligible for federal funding. The [Province/Territory of (insert P/T)] has submitted projects to the federal government for review that, if approved, would use its entire allocation. You may wish to follow up with the [Name of Ministry and Province].

For either Water/Wastewater or Public Transit projects if province/territory has fully allocated their entire allocation for the program and all projects have been approved

Under the Clean Water and Wastewater Fund or the Public Transit Infrastructure Fund, provinces and territories receive an allocation, prioritize projects, and submit those projects for federal funding. The [Province/Territory of (insert P/T)] has submitted projects which have been approved and account for its entire allocation.

For Public Transit Infrastructure Fund projects requiring an extension beyond March 31, 2018

Under the Public Transit Infrastructure Fund, provinces and territories receive an allocation, prioritize eligible projects and submit them for federal funding. Projects are required to be completed by March 31, 2018, unless an extension is granted by the Minister of Infrastructure and Communities. To receive an extension, project proponents must submit a request through their province or territory, which in turn is responsible for submitting those requests to Infrastructure Canada for federal approval. Extensions can be granted up to March 31, 2019. Please note that any requests for an extension beyond March 31, 2018, must be supported by a demonstrated need for the extension.

I would suggest that you contact [insert provincial/territorial contact from Annex, PTIF] for extension requests.

For Clean Water and Wastewater Fund projects requiring an extension beyond March 31, 2018

Under the Clean Water and Wastewater Fund, provinces and territories receive an allocation, prioritize eligible projects and submit them for federal funding. Projects are required to be completed by March 31, 2018 in the provinces, and March 31, 2019 in the territories, unless an extension is granted by the Minister of Infrastructure and Communities. To receive an extension, project proponents must submit a request through their province or territory, which in turn is responsible for submitting those requests to Infrastructure Canada for federal approval. Extensions can be granted up to March 31, 2019 in the provinces, and March 31, 2020 in the territories. Please note that any requests for an extension must be supported by a demonstrated need for the extension.

I would suggest that you contact [insert provincial/territorial contact from Annex, CWWF] for extension requests.

For all projects seeking funding under the New Building Canada Fund, except Water/Wastewater or Public Transit

Your proposed project for a [XXX] in [Location] may be eligible for funding under the Provincial-Territorial Infrastructure Component of the New Building Canada Fund. Under this program, proposed projects must first be prioritized by the province before they are submitted to Infrastructure Canada for consideration. I would encourage you to provide your proposal to [Name of Ministry and Province] so that it may determine whether the project should be prioritized for funding consideration.

For projects where an application has already been submitted to a province as part of the province's formal intake process under the Small Communities Fund or for funding under the Public Transit Infrastructure Fund – National and Regional Projects

Your proposed project for a [XXX] in [Location] may be eligible for funding under the Provincial-Territorial Infrastructure Component – [Small Communities Fund] [National and Regional Projects] [Small Communities Fund and National and Regional Projects components] of the New Building Canada Fund. Under this program, proposed projects must first be prioritized by the province before they are submitted to Infrastructure Canada for consideration. I would encourage you to follow up with the [Name of Ministry and Province] to determine the status of your application.

For Ontario only

The proposed project may be eligible for funding under the Provincial-Territorial Infrastructure Component of the New Building Canada Fund. Under this program, provinces and territories receive an allocation, prioritize projects, and submit the ones eligible for federal funding. The Province of Ontario has submitted projects to the federal government for review that, if approved, would use its entire allocation. As a result, the Province has indicated that it is not considering new projects at this time.

For projects that are not eligible under any Infrastructure Canada Programs

Unfortunately, your proposed project for a [XXX] in [Location] is not eligible for funding under Infrastructure Canada programs.

IF APPLICABLE ADD

However, as this proposal may potentially be eligible under programs within the purview of my colleague the Honourable [Name Surname], Minister of [Portfolio], I have taken the liberty of forwarding a copy of your letter or email for [his/her] consideration.

[or]

For information on other potential federal funding programs, I would invite you to contact Service Canada at 1-800-O-CANADA (1-800-622-6232).

For all project proposals if the projects fall into one of the eligible categories of the Gas Tax Fund

Your proposal may also be eligible under the federal Gas Tax Fund—the largest component of the New Building Canada Plan—provided that the municipalities involved, as the ultimate recipients under the program, choose to apply their allocation to such a project.

For all project proposals sent by a Town/Municipality if the project falls into one of the eligible categories of the Gas Tax Fund

Your proposal may also be eligible under the federal Gas Tax Fund—the largest component of the New Building Canada Plan—provided that the [Municipality of] [Town of] [Name of Town/Municipality], as the ultimate recipient under the program, chooses to apply its allocation to this project.

For when a member of the public is asking about, or expressing concern about, a project that is under active review

The Government of Canada works closely with provincial, territorial and municipal partners to fund infrastructure projects, but it is these orders of government that are responsible for the planning, prioritization, design, financing and operation of their infrastructure assets. As the project you are writing about would be constructed in [insert province], I would encourage you to contact [insert responsible provincial lead ministry]. Please note that to date, the project has not yet been approved for federal funding. Once submitted to Infrastructure Canada, a review of the project against the terms and conditions of our funding program will take place before it goes to the Minister of Infrastructure and Communities for decision.

For general correspondence regarding the Canada Infrastructure Bank

Commented [RL2]: LEAD: CANADA INFRASTRUCTURE BANK INPUT TO FOLLOW

The Government of Canada is also committed to finding innovative ways to address Canada's pressing infrastructure needs. That is why the Government of Canada announced the establishment of a new Canada Infrastructure Bank. The Bank will be an arm's length Crown corporation dedicated to increasing investment in growth-oriented infrastructure across the country.

On July 6, 2017, the Government of Canada announced its selection for Chairperson of the Board for the Canada Infrastructure Bank, and will soon finalize the selection for the Bank's Board of Directors and Chief Executive Officer. Legislation to establish the new Bank received Royal Assent in June 2017, and the Government is working towards implementation, with the goal of having the Canada Infrastructure Bank operational in late 2017.

Information on Infrastructure Canada's website will be regularly updated with new developments. I encourage you to visit the Department's website at www.infrastructure.gc.ca for new information regarding the Canada Infrastructure Bank as it becomes available.

For general correspondence regarding the Smart Cities Challenge

NOTE: PLEASE VALIDATE USE OF THIS CONTENT WITH THE SMART CITIES CHALLENGE TEAM IN EACH CORRESPONDENCE

THESE PARAGRAPHS MAY BE USED BEFORE KICK-OFF

The Smart Cities Challenge will invite communities from all across Canada to come forward with their best ideas to improve the lives of their residents through innovation, data and connected technology. The Challenge will invite all communities – large and small – including municipalities, local or regional governments, and Indigenous communities (First Nations, Métis and Inuit) to identify their most pressing problems, and work with residents, businesses, and civil society to achieve meaningful outcomes. The best ideas will have a chance to receive funding.

More details on the Challenge will be available in the coming weeks. I encourage you to visit the Department's website at www.infrastructure.gc.ca for new information regarding the Smart Cities Challenge as it becomes available.

You can also contact the Smart Cities Challenge team by email at infc.sc-vi.infc@canada.ca.

Commented [NT3]: Only use when a direct response by the SCC team is required.

THESE PARAGRAPHSTO BE USED AFTER KICK-OFF

The first competition of the Smart Cities Challenge officially kicked-off on November XX, 2017, challenging communities from coast to coast to coast to come forward with their best ideas to improve the lives of their residents through innovation, data and connected technology. Communities have until April 24, 2018 to submit their applications.

The Challenge invites all communities in Canada – large and small – including municipalities, local or regional governments, and Indigenous communities to identify their most pressing problems, and work with residents, businesses, and civil society to achieve meaningful outcomes. Communities are encouraged to innovate and think big for an opportunity to win up to $50 million in prizes. The smart cities approach is all about building the communities of tomorrow, which takes everyone working together.

More details on the program are available on the Department's website at www.infrastructure.gc.ca. I encourage you to visit the website for current information regarding the Smart Cities Challenge.

You can also contact the Smart Cities Challenge team by email at infc.sc-vi.infc@canada.ca.

Commented [NT4]: Only use when a direct response by the SCC team is required.

For general correspondence regarding the Disaster Mitigation and Adaptation Fund

The Government of Canada Disaster Mitigation and Adaptation Fund will support community resilience that will result in increased infrastructure capacity to withstand and adapt to climate change impacts, and climate-related disaster mitigation. As a national, competitive, merit-based program, the Fund is designed to support investments that will mitigate current and future climate risks, such as floods, wildfires and droughts.

Add this paragraph if there is reference to Investing in Indigenous Communities

The Government of Canada is committed to renewing the relationship between Canada and Indigenous peoples based on the recognition of rights, respect, cooperation, partnership and advancing the outcomes of the Truth and Reconciliation Commission. This includes making infrastructure investments in Indigenous communities, which represent a significant opportunity to promote inclusive growth.

For projects seeking funding under the Community, Culture and Recreation Infrastructure Stream (from website)

Recognizing the role that engaged and active citizens play in ensuring the strength of our communities, the Government is also funding the Community, Culture and Recreation Infrastructure Stream, which will provide funding for infrastructure projects that improve social inclusion and civic engagement. These investments will include, for example, new, expanded or renewed community hubs and centres, cultural and recreational installations and facilities.

For projects seeking funding under the Rural and Northern Infrastructure Stream (from Budget letter)

Because rural and northern communities have unique infrastructure needs that require a more targeted approach, the Government of Canada will invest $2 billion to support a broad range of infrastructure projects. Projects could include improving road access or expanding Internet connectivity. In addition, through an Arctic Energy Fund sourced from the Green Infrastructure Provision, the Government will invest $400 million to help address energy security in the territories, including in Indigenous communities.

Commented [RL5]: Include this sentence only if the incoming letter is from someone in the Territories.

For general correspondence regarding Integrated Bilateral Agreements

To promote closer, more effective collaboration between governments, the Government of Canada will work with provincial and territorial partners to establish and support infrastructure outcomes that make sense for Canadians and that make our communities feel like home.

For projects seeking funding under Integrated Bilateral Agreements (language similar than for other programs)

Under the new agreement, proposed projects must first be prioritized by the [province][territory] before they are submitted to Infrastructure Canada for consideration. Once the agreement is signed, I would encourage [you][name if referral] to provide [your][their] proposal to the [name of province or territory] so that it may determine whether the project should be prioritized for funding consideration under the [name of stream] Stream.

For questions related to timelines for Integrated Bilateral Agreement Negotiation or when projects can be submitted for approval (from the Minister's July 2017 letter to his provincial/territorial counterparts)

Our goal is to conclude negotiation of the Integrated Bilateral Agreements by March 2018 at the latest.

For projects that fall under the purview of another federal department

Since this matter [also] falls under the purview of my colleague the Honourable [Name Surname], Minister of [Portfolio], I have taken the liberty of forwarding a copy of your letter or email for [his/her] [consideration] [information].

PARAGRAPHS FOR CORRESPONDENCE RELATED TO BUDGET 2017

For All Correspondence

In Budget 2017, the Government of Canada announced a historic plan to invest more than $180 billion in infrastructure over 12 years. The investments in infrastructure that we make today will benefit Canadians for years to come: delivering clean, sustained economic growth; building stronger, more inclusive communities; and creating more and better, middle-class jobs for Canadians.

Infrastructure is the foundation of sustainable and inclusive communities—it removes barriers, brings people together, fosters innovation and allows all Canadians to be active participants in their community. We are working closely with all our partners and stakeholders to deliver this ambitious plan that will make a real difference to Canadians and Canadian communities.

Infrastructure Canada has started discussions with its partners in [P/T] to sign a long-term agreement that would see $[provincial allocation] invested in infrastructure over the next 11 years.

Commented [LD6]: Newfoundland and Labrador . $555,842,846
Prince Edward Island . $366,977,323
Nova Scotia . $828,493,161
New Brunswick . $673,217,569
Québec* . $7,535,937,919
Ontario** . $11,846,483,456
Manitoba*** . $1,172,076,153
Saskatchewan . $896,323,008
Alberta . $3,397,857,038
British Columbia*** . $4,129,680,161
Yukon . $445,617,300
Northwest Territories . $570,776,826
Nunavut . $566,761,621

More information on federal funding programs will be announced in the coming months. You can find additional information on Infrastructure Canada programs at www.infrastructure.gc.ca.
Note: This sentence should not be used for replies to VIPs, as per MINO and DMO instructions of March 2017.

For letters about Public Transit

To support the ambitious public transit projects, the Government of Canada will invest $28.7 billion. This funding will make it possible for Canadian communities to transform the way that Canadians live, move and work.

For letters about Green Infrastructure

In advancing Canada's efforts to build a clean economy, Budget 2017 laid out a plan to invest $16.9 billion in green infrastructure, including initiatives that will support the implementation of the Pan-Canadian Framework on Clean Growth and Climate Change. Of that amount, $9.2 billion will be provided to provinces and territories to support projects to reduce greenhouse gas emissions; deliver clean water; safely manage wastewater; help communities prepare for challenges that result from climate change; and help build cleaner, better-connected electricity systems.

For letters about Social Infrastructure

Budget 2017 proposes new investments of $21.9 billion to support social infrastructure in Canadian communities. This funding will support investments in early learning and child care, affordable housing, home care, and cultural and recreational infrastructure, which will strengthen our communities now, and build a better quality of life for our children and grandchildren.

For letters about Rural and Northern Infrastructure

Because rural and northern communities have unique infrastructure needs that require a more targeted approach, the Government of Canada will invest $2 billion to support a broad range of infrastructure projects. Projects could include improving road access or expanding Internet connectivity. In addition, through an Arctic Energy Fund sourced from the Green Infrastructure Provision, the Government of Canada will invest $400 million to help address energy security in the territories, including in Indigenous communities.

Commented [RL7]: Include this sentence only if the incoming letter is from someone in the Territories.

For letters about the Canada Infrastructure Bank

Commented [RL8]: **LEAD: CANADA INFRASTRUCTURE BANK INPUT TO FOLLOW**

The Canada Infrastructure Bank will be responsible for investing at least $35 billion, using loans, loan guarantees and equity investments. These investments will be made strategically, with a focus on transformative projects, such as regional transit plans, transportation networks, and electricity grid interconnections.

PARAGRAPH FOR CONCLUSION AND SIGNATURE BLOCK

Thank you for writing on [this/these] important issue(s).

Yours sincerely,

Amarjeet Sohi, P.C., M.P.

c.c.* The Honourable [Full Name], P.C., M.P.
Minister of …

Mr. [Full Name], M.P.
[Name of constituency/riding]

* Generally copy only federal Ministers, Members of Parliament and Senators copied on the incoming letter.

ANNEX – PROVINCIAL/TERRITORIAL CONTACTS FOR THE PUBLIC TRANSIT INFRASTRUCTURE FUND

PHASE 1 PROJECT EXTENSIONS

ALBERTA
Ashley Bhatia
Director, Public Transportation Policy and Programs, Alberta Transportation
Telephone: 780-427-9781
Email: ashley.bhatia@gov.ab.ca

BRITISH COLUMBIA
Silas Brownsey, Executive Director (Transit)
Ministry of Transportation and Infrastructure
Telephone: 250-387-4851
Email: silas.brownsey@gov.bc.ca

MANITOBA
Jenna Junkin
Telephone: 204-945-4074 or 1-800-268-4883
Email: infra@gov.mb.ca

NEW BRUNSWICK
Director of Community Funding Branch, Environment and Local Government
Telephone: 506-457-4947
Email: cwwf-fepteu@gnb.ca

NEWFOUNDLAND AND LABRADOR
Ian Duffett, Municipal Affairs
Telephone: 709-729-3068
Email: ianduffett@gov.nl.ca

NORTHWEST TERRITORIES
Department of Municipal and Community Affairs
Telephone: 867-767-9160, ext. 21012
Email: chris_hewitt@gov.nt.ca

NOVA SCOTIA
Aileen Waller-Hebb
Telephone: 902-424-7414
Email: aileen.waller-hebb@novascotia.ca

NUNAVUT
Linda Casson, Community Infrastructure Division,
Community and Government Services
Telephone: 867-975-5336
Email: lcasson@gov.nu.ca

ONTARIO
Tasneem Essaji, Manager, Policy and Planning, Ministry of Transportation
Telephone: 416-585-6312
Email: tasneem.essaji@ontario.ca

PRINCE EDWARD ISLAND
Darlene Rhodenizer
Telephone: 902-368-6213
Email: dlrhodenizer@gov.pe.ca

QUEBEC
Direction du transport terrestre des personnes
Telephone: 418-644-0324

SASKATCHEWAN
Municipal Infrastructure and Finance
Telephone: 306-787-1262
Email: infra@gov.sk.ca

YUKON
John McGovern, Department of Community Services
Telephone: 867-667-8954
Email: john.mcgovern@gov.yk.ca

ANNEX – PROVINCIAL/TERRITORIAL CONTACTS FOR THE CLEAN WATER AND WASTEWATER FUND

PHASE 1 PROJECT EXTENSIONS

ALBERTA
Dale Fung, Senior Financial Officer
Finance Branch, Alberta Transportation
Telephone: 780-427-2030
Email: dale.fung@gov.ab.ca

BRITISH COLUMBIA
CWWF Program Lead, Local Government Infrastructure and
Finance Branch, Ministry of Community, Sport and Cultural Development
Telephone: 250-387-4060
Email: infra@gov.bc.ca

MANITOBA
Jenna Junkin
Telephone: 204-945-4074 or 1-800-268-4883
Email: infra@gov.mb.ca

NEW BRUNSWICK
Director of Community Funding Branch, Environment and Local
Telephone: 506-457-4947
Email: cwwf-fepteu@gnb.ca

NEWFOUNDLAND AND LABRADOR
Ian Duffett, Municipal Affairs
Telephone: 709-729-3068
Email: ianduffett@gov.nl.ca

NORTHWEST TERRITORIES
Department of Municipal and Community Affairs
Telephone: 867-767-9160, ext. 21012
Email: chris_hewitt@gov.nt.ca

NOVA SCOTIA
Aileen Waller-Hebb
Telephone: 902-424-7414
Email: aileen.waller-hebb@novascotia.ca

NUNAVUT
Linda Casson, Community Infrastructure Division, Community and Government Services
Telephone: 867-975-5336
Email: lcasson@gov.nu.ca

ONTARIO
Infrastructure Ontario
Telephone: 844-803-8856
Email: cwwf@infrastructureontario.ca

PRINCE EDWARD ISLAND
Darlene Rhodenizer
Telephone: 902-368-6213
Email: dlrhodenizer@gov.pe.ca

QUEBEC
Department of Municipal Affairs, Land Occupancy and Public Security
Telephone: 418-691-2015
Fax: 418-643-7385
Email: communications@mamot.gouv.qc.ca

SASKATCHEWAN
Municipal Infrastructure and Finance
Telephone: 306-787-1262
Email: infra@gov.sk.ca

YUKON
John McGovern, Department of Community Services
Telephone: 867-667-8954
Email: john.mcgovern@gov.yk.ca

CORRESPONDENCE STANDARDS
(Last updated: November 10, 2017)

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PARAGRAPHS FOR INTRODUCTION OF LETTER

For Responses from the Minister
(Incoming letter or email addressed to the Minister)

Thank you for your [letter or email] of [Month Day, Year], regarding the [proposed project/project name] for [XXX] in [Location].
Note: If it has been more than 30 days since the incoming was received in the Minister's Office, include the following sentence at the end of the opening paragraph:
Please accept my apologies for the delay in responding.

OR

For Referrals from the Office of the Prime Minister
(Incoming letter or email addressed to the Prime Minister)

I am writing in response to your [letter or email] of [Month Day, Year], to the Prime Minister, regarding [Project Name] or [federal investment in infrastructure].
Note: Do not add apology line when responding to a referral.

OR

For Referrals from other Ministers' Offices
(Incoming letter or email addressed to another federal Minister)

I am writing in response to your [letter or email] of [Month Day, Year], to my colleague the Honourable [Surname Name], Minister of [Department], regarding [Project Name] or [federal investment in infrastructure].
Note: Do not add apology line when responding to a referral.

OR

For Direct Replies from Assistant Deputy Ministers
(Incoming letter or email addressed to the Minister)

I am writing in response to your [letter or email] of [Month Day, Year], [addressed / forwarded] to the Honourable Amarjeet Sohi, Minister of Infrastructure and Communities, regarding [Project Name] or [federal investment in infrastructure]. The Minister has asked me to reply on his behalf.
Note: Do not add apology line when responding on behalf of the Minister.

OR

For Direct Replies from Assistant Deputy Ministers
(Incoming letter or email addressed to the Prime Minister)

I am writing in response to your [letter or email] of [Month Day, Year], to the Prime Minister, regarding [Project Name] or [federal investment in infrastructure]. The Honourable Amarjeet Sohi, Minister of Infrastructure and Communities, has asked me to reply on his behalf.
Note: Do not add apology line when responding on behalf of the Minister.

PARAGRAPHS FOR CORRESPONDENCE REQUESTING THAT A PROJECT BE FUNDED UNDER INFRASTRUCTURE CANADA PROGRAMS

For All Correspondence

The Government of Canada has a long history of making strategic investments in a wide range of infrastructure categories. Infrastructure is the foundation of sustainable and inclusive communities—it removes barriers, brings people together and allows all Canadians to be active participants in their community. Moreover, good infrastructure fosters an environment where the best of Canadian innovation can grow.

The Government of Canada is investing more than $180 billion under the long-term Investing in Canada Plan. Our priority is to promote infrastructure that will create good, well-paying jobs that can help the middle class grow and prosper. Key areas for investment include public transit, green and social infrastructure, transportation infrastructure that supports trade, and infrastructure in rural and northern communities.

Through Budget 2017, the Government has also announced plans to invest $20.3 billion towards public transit that would transform the way Canadians live, move and work. Green infrastructure projects will also be prioritized through an investment of $16.9 billion over 11 years that will reduce greenhouse gas emissions, deliver clean water, safely manage wastewater, and help communities prepare for challenges that result from climate change.

Infrastructure Canada has started discussions with its partners in [P/T] to sign a long-term agreement that would see $[provincial allocation] invested in infrastructure over the next 11 years.

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British Columbia *** . $4,129,680,161
Yukon . $445,617,300
Northwest Territories . $570,776,826
Nunavut . $566,761,621

Additional details and updates on Canada's future infrastructure investments and funding programs can be found on the Department's website at www.infrastructure.gc.ca.
Note: This sentence should not be used for replies to VIPs, as per MINO and DMO instructions of March 2017.

For Water/Wastewater projects if will be completed by 2018 or timing unknown

The [include if needed: $2-billion] Clean Water and Wastewater Fund encourages economic growth and supports sustainable, livable communities. This Fund primarily focuses investments on meeting immediate priorities for clean water and wastewater to support a cleaner and healthier environment for communities while laying the groundwork for longer-term strategic investments that will keep pace with the rapid growth of Canadian cities.

For Public Transit projects if will be completed by 2018 or timing unknown

The [include if needed: $3.4-billion] Public Transit Infrastructure Fund encourages economic growth and supports sustainable, livable communities. This Fund primarily supports investments that meet immediate public priorities, including projects that improve the state of good repair of public transit, support system optimization and efficiency, increase asset management capacity, and focus on design and planning for future expansion of public transit systems. It also lays the groundwork for longer-term strategic investments in public transit that will keep pace with the rapid growth of Canadian cities.

For either Water/Wastewater or Public Transit projects and if response incorporates either of two previous paragraphs

Your proposed project for a [XXX] in [Location] may be eligible for funding under this new program if it meets program requirements and can be completed by March 2018. In addition, [XXX] [name of category/categories] [is/are] eligible [category/categories] under the Provincial-Territorial Infrastructure Component of the New Building Canada Fund.

Under the new agreement, proposed projects must first be prioritized by the province before they are submitted to Infrastructure Canada for consideration once the agreement is signed. I would encourage you to provide your proposal to [Name of Ministry and Province] so that it may determine whether the project should be prioritized for funding consideration under the Public Transit Infrastructure Stream, the Green Infrastructure Stream, the Community, Culture and Recreation Infrastructure Stream, or the Rural and Northern Communities Infrastructure.

For either Water/Wastewater or Public Transit projects if province/territory has fully allocated their entire allocation for the program and all projects have not yet been approved

The proposed project may be eligible for funding under the Clean Water and Wastewater Fund or the Public Transit Infrastructure Fund. Under these programs, provinces and territories receive an allocation, prioritize projects, and submit the ones eligible for federal funding. The [Province/Territory of (insert P/T)] has submitted projects to the federal government for review that, if approved, would use its entire allocation. You may wish to follow up with the [Name of Ministry and Province].

For either Water/Wastewater or Public Transit projects if province/territory has fully allocated their entire allocation for the program and all projects have been approved

Under the Clean Water and Wastewater Fund or the Public Transit Infrastructure Fund, provinces and territories receive an allocation, prioritize projects, and submit those projects for federal funding. The [Province/Territory of (insert P/T)] has submitted projects which have been approved and account for its entire allocation.

For Public Transit Infrastructure Fund projects requiring an extension beyond March 31, 2018

Under the Public Transit Infrastructure Fund, provinces and territories receive an allocation, prioritize eligible projects and submit them for federal funding. Projects are required to be completed by March 31, 2018, unless an extension is granted by the Minister of Infrastructure and Communities. To receive an extension, project proponents must submit a request through their province or territory, which in turn is responsible for submitting those requests to Infrastructure Canada for federal approval. Extensions can be granted up to March 31, 2019. Please note that any requests for an extension beyond March 31, 2018, must be supported by a demonstrated need for the extension.

I would suggest that you contact [insert provincial/territorial contact from Annex, PTIF] for extension requests.

For Clean Water and Wastewater Fund projects requiring an extension beyond March 31, 2018

Under the Clean Water and Wastewater Fund, provinces and territories receive an allocation, prioritize eligible projects and submit them for federal funding. Projects are required to be completed by March 31, 2018 in the provinces, and March 31, 2019 in the territories, unless an extension is granted by the Minister of Infrastructure and Communities. To receive an extension, project proponents must submit a request through their province or territory, which in turn is responsible for submitting those requests to Infrastructure Canada for federal approval. Extensions can be granted up to March 31, 2019 in the provinces, and March 31, 2020 in the territories. Please note that any requests for an extension must be supported by a demonstrated need for the extension.

I would suggest that you contact [insert provincial/territorial contact from Annex, CWWF] for extension requests.

For all projects seeking funding under the New Building Canada Fund, except Water/Wastewater or Public Transit

Your proposed project for a [XXX] in [Location] may be eligible for funding under the Provincial-Territorial Infrastructure Component of the New Building Canada Fund. Under this program, proposed projects must first be prioritized by the province before they are submitted to Infrastructure Canada for consideration. I would encourage you to provide your proposal to [Name of Ministry and Province] so that it may determine whether the project should be prioritized for funding consideration.

For projects where an application has already been submitted to a province as part of the province's formal intake process under the Small Communities Fund or for funding under the Public Transit Infrastructure Fund – National and Regional Projects

Your proposed project for a [XXX] in [Location] may be eligible for funding under the Provincial-Territorial Infrastructure Component – [Small Communities Fund] [National and Regional Projects] [Small Communities Fund and National and Regional Projects components] of the New Building Canada Fund. Under this program, proposed projects must first be prioritized by the province before they are submitted to Infrastructure Canada for consideration. I would encourage you to follow up with the [Name of Ministry and Province] to determine the status of your application.

For Ontario only

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For projects that are not eligible under any Infrastructure Canada Programs

Unfortunately, your proposed project for a [XXX] in [Location] is not eligible for funding under Infrastructure Canada programs.

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However, as this proposal may potentially be eligible under programs within the purview of my colleague the Honourable [Name Surname], Minister of [Portfolio], I have taken the liberty of forwarding a copy of your letter or email for [his/her] consideration.

[or]

For information on other potential federal funding programs, I would invite you to contact Service Canada at 1-800-O-CANADA (1-800-622-6232).

For all project proposals if the projects fall into one of the eligible categories of the Gas Tax Fund

Your proposal may also be eligible under the federal Gas Tax Fund—the largest component of the New Building Canada Plan—provided that the municipalities involved, as the ultimate recipients under the program, choose to apply their allocation to such a project.

For all project proposals sent by a Town/Municipality if the project falls into one of the eligible categories of the Gas Tax Fund

Your proposal may also be eligible under the federal Gas Tax Fund—the largest component of the New Building Canada Plan—provided that the [Municipality of] [Town of] [Name of Town/Municipality], as the ultimate recipient under the program, chooses to apply its allocation to this project.

For when a member of the public is asking about, or expressing concern about, a project that is under active review

The Government of Canada works closely with provincial, territorial and municipal partners to fund infrastructure projects, but it is these orders of government that are responsible for the planning, prioritization, design, financing and operation of their infrastructure assets. As the project you are writing about would be constructed in [insert province], I would encourage you to contact [insert responsible provincial lead ministry]. Please note that to date, the project has not yet been approved for federal funding. Once submitted to Infrastructure Canada, a review of the project against the terms and conditions of our funding program will take place before it goes to the Minister of Infrastructure and Communities for decision.

For general correspondence regarding the Canada Infrastructure Bank

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The Government of Canada is also committed to finding innovative ways to address Canada's pressing infrastructure needs. That is why the Government of Canada announced the establishment of a new Canada Infrastructure Bank. The Bank will be an arm's length Crown corporation dedicated to increasing investment in growth-oriented infrastructure across the country.

The Government of Canada has reached several milestones in the Canada Infrastructure Bank's development, having announced its selection for Chairperson of the Board for the in July 2017, and the Bank's Board of Directors in November 2017. Legislation to establish the new Bank received Royal Assent in June 2017.With the selection of the Chief Executive officer soon to be finalized, the Government is working towards implementation, with the goal of having the Canada Infrastructure Bank operational in late 2017.

Information on Infrastructure Canada's website will be regularly updated with new developments. I encourage you to visit the Department's website at www.infrastructure.gc.ca for new information regarding the Canada Infrastructure Bank as it becomes available.

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For general correspondence regarding the Smart Cities Challenge

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THESE PARAGRAPHSTO BE USED AFTER KICK-OFF

The first competition of the Smart Cities Challenge officially kicked-off on November 23, 2017, challenging communities from coast to coast to coast to come forward with their best ideas to improve the lives of their residents through innovation, data and connected technology. Communities have until April 24, 2018 to submit their applications.

The Challenge invites all communities in Canada – large and small – including municipalities, local or regional governments, and Indigenous communities to identify their most pressing problems, and work with residents, businesses, and civil society to achieve meaningful outcomes. Communities are encouraged to innovate and think big for an opportunity to win up to $50 million in prizes. The smart cities approach is all about building the communities of tomorrow, which takes everyone working together.

More details on the program are available on the Department's website at www.infrastructure.gc.ca. I encourage you to visit the website for current information regarding the Smart Cities Challenge.

You can also contact the Smart Cities Challenge team by email at infc.sc-vi.infc@canada.ca.

Deleted: THESE PARAGRAPHS MAY BE USED BEFORE KICK-OFF¶
¶
The Smart Cities Challenge will invite communities from all across Canada to come forward with their best ideas to improve the lives of their residents through innovation, data and connected technology. The Challenge will invite all communities – large and small – including municipalities, local or regional governments, and Indigenous communities (First Nations, Métis and Inuit) to identify their most pressing problems, and work with residents, businesses, and civil society to achieve meaningful outcomes. The best ideas will have a chance to receive funding.¶
¶
More details on the Challenge will be available in the coming weeks. I encourage you to visit the Department's website at www.infrastructure.gc.ca for new information regarding the Smart Cities Challenge as it becomes available.¶
¶
You can also contact the Smart Cities Challenge team by email at infc.sc-vi.infc@canada.ca.¶

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Commented [NT4]: Only use when a direct response by the SCC team is required.

For general correspondence regarding the Disaster Mitigation and Adaptation Fund

The Government of Canada Disaster Mitigation and Adaptation Fund will support community resilience that will result in increased infrastructure capacity to withstand and adapt to climate change impacts, and climate-related disaster mitigation. As a national, competitive, merit-based program, the Fund is designed to support investments that will mitigate current and future climate risks, such as floods, wildfires and droughts.

Add this paragraph if there is reference to Investing in Indigenous Communities

The Government of Canada is committed to renewing the relationship between Canada and Indigenous peoples based on the recognition of rights, respect, cooperation, partnership and advancing the outcomes of the Truth and Reconciliation Commission. This includes making infrastructure investments in Indigenous communities, which represent a significant opportunity to promote inclusive growth.

For projects seeking funding under the Community, Culture and Recreation Infrastructure Stream (from website)

Recognizing the role that engaged and active citizens play in ensuring the strength of our communities, the Government is also funding the Community, Culture and Recreation Infrastructure Stream, which will provide funding for infrastructure projects that improve social inclusion and civic engagement. These investments will include, for example, new, expanded or renewed community hubs and centres, cultural and recreational installations and facilities.

For projects seeking funding under the Rural and Northern Infrastructure Stream (from Budget letter)

Because rural and northern communities have unique infrastructure needs that require a more targeted approach, the Government of Canada will invest $2 billion to support a broad range of infrastructure projects. Projects could include improving road access or expanding Internet connectivity. In addition, through an Arctic Energy Fund sourced from the Green Infrastructure Provision, the Government will invest $400 million to help address energy security in the territories, including in Indigenous communities.

Commented [RL5]: Include this sentence only if the incoming letter is from someone in the Territories.

For general correspondence regarding Integrated Bilateral Agreements

To promote closer, more effective collaboration between governments, the Government of Canada will work with provincial and territorial partners to establish and support infrastructure outcomes that make sense for Canadians and that make our communities feel like home.

For projects seeking funding under Integrated Bilateral Agreements (language similar than for other programs)

Under the new agreement, proposed projects must first be prioritized by the [province][territory] before they are submitted to Infrastructure Canada for consideration. Once the agreement is signed, I would encourage [you][name if referral] to provide [your][their] proposal to the [name of province or territory] so that it may determine whether the project should be prioritized for funding consideration under the [name of stream] Stream.

For questions related to timelines for Integrated Bilateral Agreement Negotiation or when projects can be submitted for approval (from the Minister's July 2017 letter to his provincial/territorial counterparts)

Our goal is to conclude negotiation of the Integrated Bilateral Agreements by March 2018 at the latest.

For projects that fall under the purview of another federal department

Since this matter [also] falls under the purview of my colleague the Honourable [Name Surname], Minister of [Portfolio], I have taken the liberty of forwarding a copy of your letter or email for [his/her] [consideration] [information].

PARAGRAPHS FOR CORRESPONDENCE RELATED TO BUDGET 2017

For All Correspondence

In Budget 2017, the Government of Canada announced a historic plan to invest more than $180 billion in infrastructure over 12 years. The investments in infrastructure that we make today will benefit Canadians for years to come: delivering clean, sustained economic growth; building stronger, more inclusive communities; and creating more and better, middle-class jobs for Canadians.

Infrastructure is the foundation of sustainable and inclusive communities—it removes barriers, brings people together, fosters innovation and allows all Canadians to be active participants in their community. We are working closely with all our partners and stakeholders to deliver this ambitious plan that will make a real difference to Canadians and Canadian communities.

Infrastructure Canada has started discussions with its partners in [P/T] to sign a long-term agreement that would see $[provincial allocation] invested in infrastructure over the next 11 years.

Commented [LD6]: Newfoundland and Labrador . $555,842,846
Prince Edward Island . $366,977,323
Nova Scotia . $828,493,161
New Brunswick . $673,217,569
Québec* . $7,535,937,919
Ontario** . $11,846,483,456
Manitoba*** . $1,172,076,153
Saskatchewan . $896,323,008
Alberta . $3,397,857,038
British Columbia*** . $4,129,680,161
Yukon . $445,617,300
Northwest Territories . $570,776,826
Nunavut . $566,761,621

More information on federal funding programs will be announced in the coming months. You can find additional information on Infrastructure Canada programs at www.infrastructure.gc.ca.
Note: This sentence should not be used for replies to VIPs, as per MINO and DMO instructions of March 2017.

For letters about Public Transit

To support the ambitious public transit projects, the Government of Canada will invest $28.7 billion. This funding will make it possible for Canadian communities to transform the way that Canadians live, move and work.

For letters about Green Infrastructure

In advancing Canada's efforts to build a clean economy, Budget 2017 laid out a plan to invest $16.9 billion in green infrastructure, including initiatives that will support the implementation of the Pan-Canadian Framework on Clean Growth and Climate Change. Of that amount, $9.2 billion will be provided to provinces and territories to support projects to reduce greenhouse gas emissions; deliver clean water; safely manage wastewater; help communities prepare for challenges that result from climate change; and help build cleaner, better-connected electricity systems.

For letters about Social Infrastructure

Budget 2017 proposes new investments of $21.9 billion to support social infrastructure in Canadian communities. This funding will support investments in early learning and child care, affordable housing, home care, and cultural and recreational infrastructure, which will strengthen our communities now, and build a better quality of life for our children and grandchildren.

For letters about Rural and Northern Infrastructure

Because rural and northern communities have unique infrastructure needs that require a more targeted approach, the Government of Canada will invest $2 billion to support a broad range of infrastructure projects. Projects could include improving road access or expanding Internet connectivity. In addition, through an Arctic Energy Fund sourced from the Green Infrastructure Provision, the Government of Canada will invest $400 million to help address energy security in the territories, including in Indigenous communities.

Commented [RL7]: Include this sentence only if the incoming letter is from someone in the Territories.

For letters about the Canada Infrastructure Bank

Commented [RL8]: **LEAD: CANADA INFRASTRUCTURE BANK INPUT TO FOLLOW**

The Canada Infrastructure Bank will be responsible for investing at least $35 billion, using loans, loan guarantees and equity investments. These investments will be made strategically, with a focus on transformative projects, such as regional transit plans, transportation networks, and electricity grid interconnections.

PARAGRAPH FOR CONCLUSION AND SIGNATURE BLOCK

Thank you for writing on [this/these] important issue(s).

Yours sincerely,

Amarjeet Sohi, P.C., M.P.

c.c.* The Honourable [Full Name], P.C., M.P.
Minister of …

Mr. [Full Name], M.P.
[Name of constituency/riding]

* Generally copy only federal Ministers, Members of Parliament and Senators copied on the incoming letter.

ANNEX – PROVINCIAL/TERRITORIAL CONTACTS FOR THE PUBLIC TRANSIT INFRASTRUCTURE FUND

PHASE 1 PROJECT EXTENSIONS

ALBERTA
Ashley Bhatia
Director, Public Transportation Policy and Programs, Alberta Transportation
Telephone: 780-427-9781
Email: ashley.bhatia@gov.ab.ca

BRITISH COLUMBIA
Silas Brownsey, Executive Director (Transit)
Ministry of Transportation and Infrastructure
Telephone: 250-387-4851
Email: silas.brownsey@gov.bc.ca

MANITOBA
Jenna Junkin
Telephone: 204-945-4074 or 1-800-268-4883
Email: infra@gov.mb.ca

NEW BRUNSWICK
Director of Community Funding Branch, Environment and Local Government
Telephone: 506-457-4947
Email: cwwf-fepteu@gnb.ca

NEWFOUNDLAND AND LABRADOR
Ian Duffett, Municipal Affairs
Telephone: 709-729-3068
Email: ianduffett@gov.nl.ca

NORTHWEST TERRITORIES
Department of Municipal and Community Affairs
Telephone: 867-767-9160, ext. 21012
Email: chris_hewitt@gov.nt.ca

NOVA SCOTIA
Aileen Waller-Hebb
Telephone: 902-424-7414
Email: aileen.waller-hebb@novascotia.ca

NUNAVUT
Linda Casson, Community Infrastructure Division,
Community and Government Services
Telephone: 867-975-5336
Email: lcasson@gov.nu.ca

ONTARIO
Tasneem Essaji, Manager, Policy and Planning, Ministry of Transportation
Telephone: 416-585-6312
Email: tasneem.essaji@ontario.ca

PRINCE EDWARD ISLAND
Darlene Rhodenizer
Telephone: 902-368-6213
Email: dlrhodenizer@gov.pe.ca

QUEBEC
Direction du transport terrestre des personnes
Telephone: 418-644-0324

SASKATCHEWAN
Municipal Infrastructure and Finance
Telephone: 306-787-1262
Email: infra@gov.sk.ca

YUKON
John McGovern, Department of Community Services
Telephone: 867-667-8954
Email: john.mcgovern@gov.yk.ca

ANNEX – PROVINCIAL/TERRITORIAL CONTACTS FOR THE CLEAN WATER AND WASTEWATER FUND

PHASE 1 PROJECT EXTENSIONS

ALBERTA
Dale Fung, Senior Financial Officer
Finance Branch, Alberta Transportation
Telephone: 780-427-2030
Email: dale.fung@gov.ab.ca

BRITISH COLUMBIA
CWWF Program Lead, Local Government Infrastructure and
Finance Branch, Ministry of Community, Sport and Cultural Development
Telephone: 250-387-4060
Email: infra@gov.bc.ca

MANITOBA
Jenna Junkin
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Email: infra@gov.mb.ca

NEW BRUNSWICK
Director of Community Funding Branch, Environment and Local
Telephone: 506-457-4947
Email: cwwf-fepteu@gnb.ca

NEWFOUNDLAND AND LABRADOR
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Email: ianduffett@gov.nl.ca

NORTHWEST TERRITORIES
Department of Municipal and Community Affairs
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Email: chris_hewitt@gov.nt.ca

NOVA SCOTIA
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Email: aileen.waller-hebb@novascotia.ca

NUNAVUT
Linda Casson, Community Infrastructure Division, Community and Government Services
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Email: lcasson@gov.nu.ca

ONTARIO
Infrastructure Ontario
Telephone: 844-803-8856
Email: cwwf@infrastructureontario.ca

Field Code Changed

PRINCE EDWARD ISLAND
Darlene Rhodenizer
Telephone: 902-368-6213
Email: dlrhodenizer@gov.pe.ca

QUEBEC
Department of Municipal Affairs, Land Occupancy and Public Security
Telephone: 418-691-2015
Fax: 418-643-7385
Email: communications@mamot.gouv.qc.ca

SASKATCHEWAN
Municipal Infrastructure and Finance
Telephone: 306-787-1262
Email: infra@gov.sk.ca

YUKON
John McGovern, Department of Community Services
Telephone: 867-667-8954
Email: john.mcgovern@gov.yk.ca

Revised standards related to Canada Infrastructure Bank

Part of POB's standard correspondence

The Government of Canada is also committed to finding innovative ways to address Canada's pressing infrastructure needs. That is why the Government of Canada announced the establishment of a new Canada Infrastructure Bank. The Bank is a new Crown corporation with a mandate to make investments in revenue-generating infrastructure projects that are in the public interest, and seek to attract investment from private sector and institutional investors to those projects. The Bank is an innovative tool to help foster new partnerships between the public and private sectors. This partnership model will help public dollars go farther and help build more infrastructure in communities across Canada.

On July 6, 2017, the Government of Canada announced its selection for Chairperson of the Board for the Canada Infrastructure Bank, and will soon finalize the selection for the Bank's Board of Directors and Chief Executive Officer. Legislation to establish the new Bank received Royal Assent in June 2017, and the Government is working towards implementation, with the goal of having the Canada Infrastructure Bank operational in late 2017.

Information on Infrastructure Canada's website will be regularly updated with new developments. I encourage you to visit the Department's website at http://www.infrastructure.gc.ca/CIB-BIC/index-eng.html for new information regarding the Canada Infrastructure Bank as it becomes available.

Part of Policy's standard Budget letter

The Canada Infrastructure Bank is a new tool to make public dollars go farther and be used more strategically by leveraging the expertise and capital of the private sector. The Bank is an arm's-length Crown corporation that will work with provincial, territorial, municipal, Indigenous and private sector investment partners to transform the way infrastructure is planned, funded and delivered in Canada.

Revised standards related to Canada Infrastructure Bank

Part of POB's standard correspondence

The Government of Canada is also committed to finding innovative ways to address Canada's pressing infrastructure needs. That is why the Government of Canada announced the establishment of a new Canada Infrastructure Bank. The Bank is a new Crown corporation with a mandate to make investments in revenue-generating infrastructure projects that are in the public interest, and seek to attract investment from private sector and institutional investors to those projects. The Bank is an innovative tool to help foster new partnerships between the public and private sectors. This partnership model will help public dollars go farther and help build more infrastructure in communities across Canada.

The Government of Canada has reached several milestones in the Canada Infrastructure Bank's development, having announced its selection for Chairperson of the Board for the in July 2017, and the Bank's Board of Directors in November 2017. Legislation to establish the new Bank received Royal Assent in June 2017. With the selection of the Chief Executive officer soon to be finalized, the Government is working towards implementation, with the goal of having the Canada Infrastructure Bank operational in late 2017.

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